ENGINEERING NEWS-RECORD

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UNIVERSITY MICROFILMS IN
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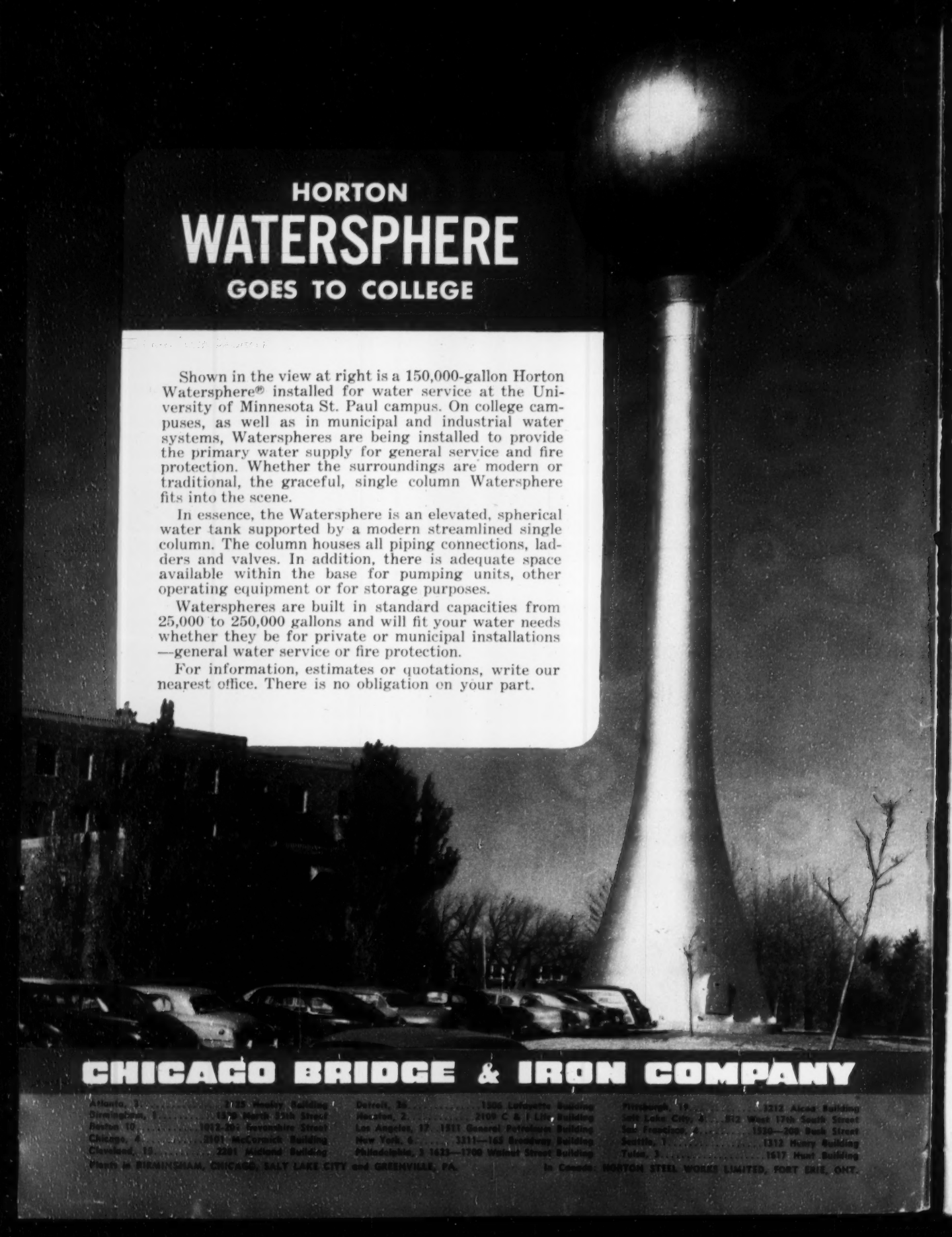
A McGRAW HILL PUBLICATION



HORTON WATERSPHERE GOES TO COLLEGE

Shown in the view at right is a 150,000-gallon Horton Watersphere® installed for water service at the University of Minnesota St. Paul campus. On college campuses, as well as in municipal and industrial water systems, Waterspheres are being installed to provide the primary water supply for general service and fire protection. Whether the surroundings are modern or traditional, the graceful, single column Watersphere fits into the scene.

In essence, the Watersphere is an elevated, spherical water tank supported by a modern streamlined single column. The column houses all piping connections, ladders and valves. In addition, there is adequate space available within the base for pumping units, other operating equipment or for storage purposes.

Waterspheres are built in standard capacities from 25,000 to 250,000 gallons and will fit your water needs whether they be for private or municipal installations —general water service or fire protection.

For information, estimates or quotations, write our nearest office. There is no obligation on your part.

CHICAGO BRIDGE & IRON COMPANY

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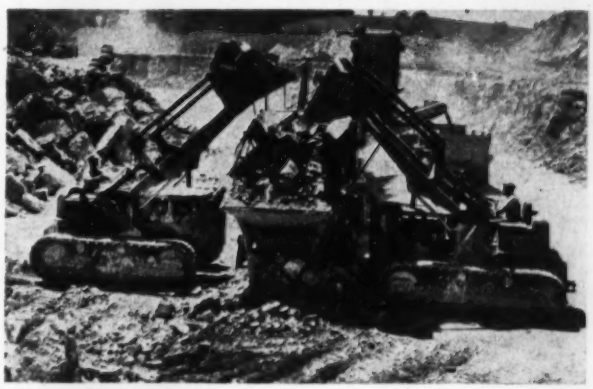
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA. In Canada: HORTON STEEL WORKS LIMITED, FORT ERIE, ONT.

Doetsch Brothers, Evanston, Illinois contractors, keep their two HD-9G's busy on a variety of jobs, like their extra-production ability: "The 2-yd HD-9G sometimes will do up to three times as much work as a 1-yd machine. Let's say the smaller unit will load a 10-yd truck in five minutes, roughly — then a 9G will load it in two minutes. Where a 1-yd machine will keep one truck going, a '9' will keep three going."

you can handle BIGGER jobs, TOUGHER jobs with this 2-YD Tractor Shovel



Two Tractor Shovels have cut production costs by bringing greater efficiency to a Midwest rock quarry. These two machines, equipped with standard 2-yd buckets, load rock directly from quarry face to rock crusher, eliminating the need of continually moving the crusher. The speed of the two Tractor Shovels enables the crusher to load out 135 eight-ton trucks a day.

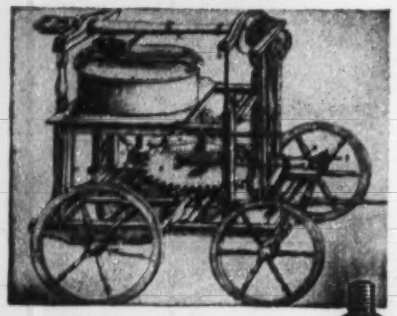
Here's a Tractor Shovel with the handiness of the popular Allis-Chalmers 1-yd unit— but with the power, strength and ability to give more than *double* the working capacity.

The Allis-Chalmers 2-yd HD-9G is just right for the jobs that overload lighter machines. Its husky 72-drawbar-hp engine packs big-job stamina. The heavy-duty, 2-yd bucket is shaped to roll-in material — get a full load with less tractor effort. It lifts loads to a dumping height of 11 ft, 4 in. There's plenty of stability, too, with 29,900 lb of weight and extra long tracks. You'll also find many other proved production-boosting features like: all-steel, box A-frame; 1,000-hour lubrication intervals for truck wheels, idlers and support rollers; simple shift pattern; quick-response hydraulic system; unit construction.

Your Allis-Chalmers dealer has all the facts. Ask him to show you how the big-production HD-9G can improve your operations.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

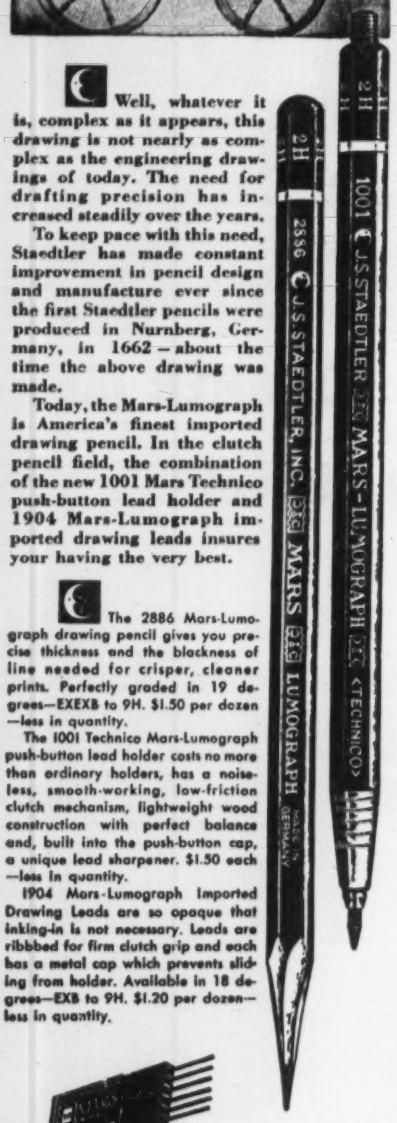
17th century PENCIL SHARPENER?



Well, whatever it is, complex as it appears, this drawing is not nearly as complex as the engineering drawings of today. The need for drafting precision has increased steadily over the years.

To keep pace with this need, Staedtler has made constant improvement in pencil design and manufacture ever since the first Staedtler pencils were produced in Nurnberg, Germany, in 1662 – about the time the above drawing was made.

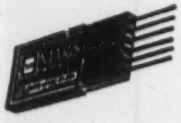
Today, the Mars-Lumograph is America's finest imported drawing pencil. In the clutch pencil field, the combination of the new 1001 Mars Technico push-button lead holder and 1904 Mars-Lumograph imported drawing leads insures your having the very best.



The 2886 Mars-Lumograph drawing pencil gives you precise thickness and the blackness of line needed for crisper, cleaner prints. Perfectly graded in 19 degrees—EXEXB to 9H. $1.50 per dozen —less in quantity.

The 1001 Technico Mars-Lumograph push-button lead holder costs no more than ordinary holders, has a noiseless, smooth-working, low-friction clutch mechanism, lightweight wood construction with perfect balance and, built into the push-button cap, a unique lead sharpener. $1.50 each —less in quantity.

1904 Mars-Lumograph Imported Drawing Leads are so opaque that inking-in is not necessary. Leads are ribbed for firm clutch grip and each has a metal cap which prevents sliding from holder. Available in 18 degrees—EXB to 9H. $1.20 per dozen—less in quantity.



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Robert F. Boger

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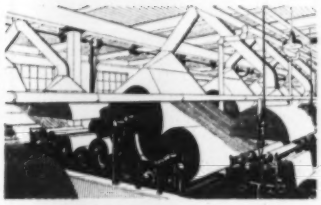
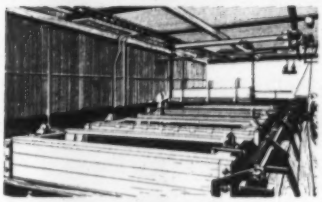
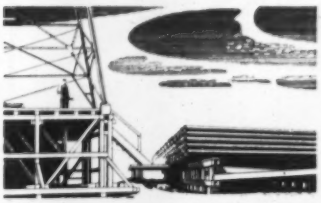
LUMBER
stresses application versatility

... among these four outstanding benefits







1 Application versatility. Wolmanized clean pressure-treated lumber is an improvement on nature. Having all the versatility and user acceptance that is traditional of wood, Wolmanized lumber goes even farther. It is many times longer lasting than untreated lumber, while being deadly to rot and termites. Wolmanized lumber is the treated lumber that is "pedigreed" with actual documented Service Records. These records not only authenticate more than a quarter century of service but list literally hundreds of applications. Wherever you may have use for treated lumber, Wolmanized clean pressure-treated lumber will meet, and will probably exceed, your requirements. Application versatility of Wolmanized lumber is heightened by important added benefits, too. Besides being clean, it is also odorless, completely paintable, harmless to skin and clothing, and noncorrosive to metal fittings.

2 Available anywhere. There are many kinds of treated lumber, but 48% of *all* clean pressure-treated lumber is "Wolmanized" brand. This means that nearly as much of it is specified and used as is the combined total of all other kinds. Distribution as well as quality earns such acceptance. 24 qualified wood preserving plants in the United States and Canada provide coast-to-coast distribution, assure certain delivery.

3 Uniform treatment. Wherever you buy Wolmanized clean pressure-treated lumber you can be sure that uniform treatment is providing a product of undeviating high quality. The Wolman brand salts are produced under a single exact formula. High pressure treatment processes by which Wolman preservative, in solution, is driven deep into wood fibers must also meet rigid Koppers requirements.

Only properly equipped, responsible wood preserving organizations can qualify for licenses to produce under the "Wolmanized" brand.

4 Proved dependability. The Service Records that demonstrate Wolmanized lumber's application versatility also prove its dependability. Actual case histories of how Wolmanized lumber has served others, and how it can fill your needs have been compiled into an informative brochure. For full information write: Koppers Company, Inc., Wolman Preservative Department, Pittsburgh 19, Pennsylvania.

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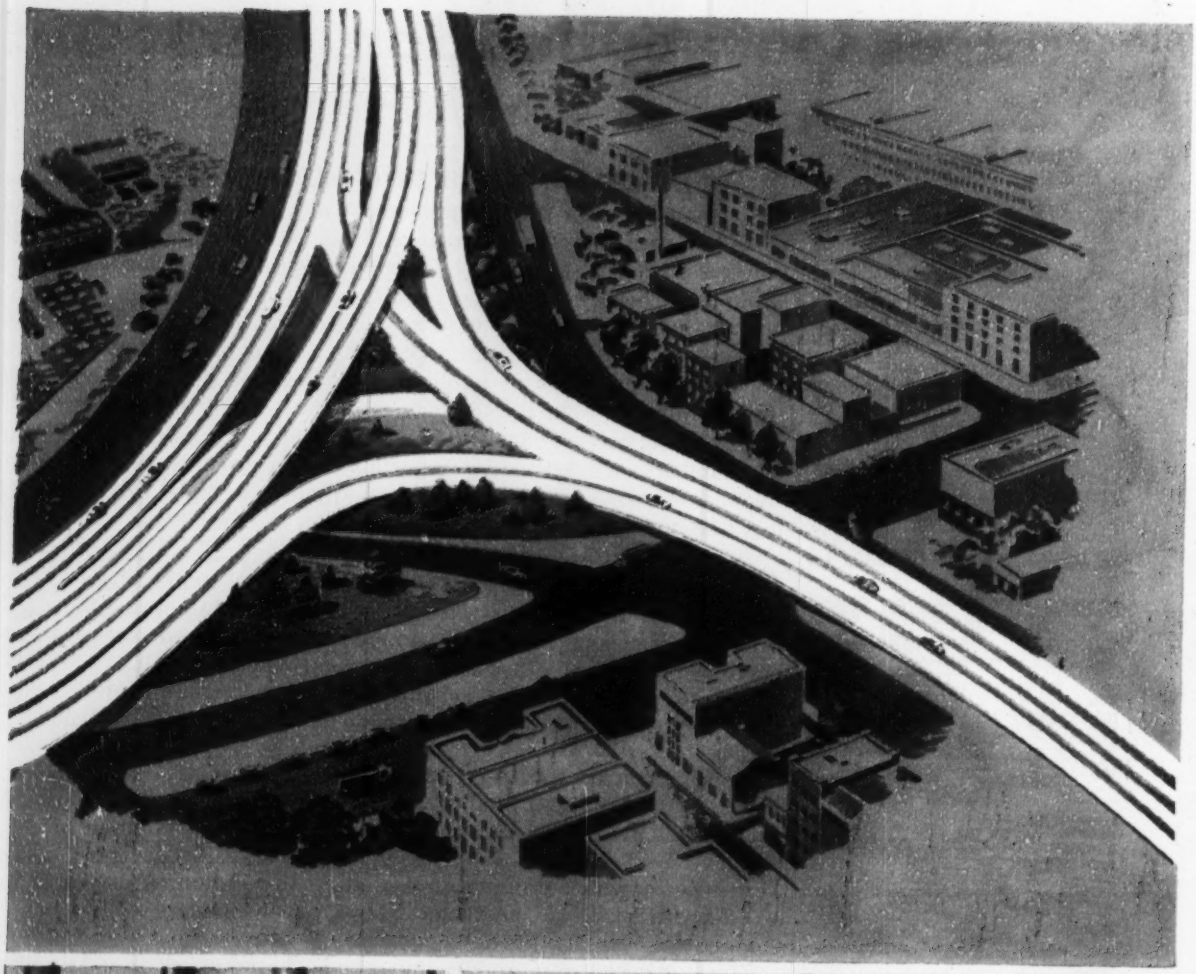
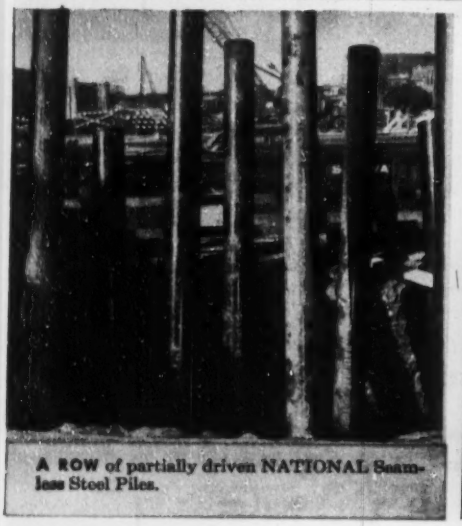
Pressure-Treated

Wolmanized
LUMBER

Brooklyn traffic "riding high"





A ROW of partially driven NATIONAL Seamless Steel Piles.

on the Prospect Expressway

...thanks to NATIONAL Seamless Steel Piling

APPROXIMATELY 400 tons of 12¾" OD x ½" wall NATIONAL Seamless Steel Piles were used in the construction of Brooklyn's Prospect Expressway. Almost two miles long, the new $22,000,000 expressway will join Gowanus Parkway to Ocean Parkway.

NATIONAL Seamless Steel Piles were used, not only because of their outstanding performance under load, but because they are actually *low in cost* per ton of load carried. Just look at these advantages:

HIGH LOADING CAPACITY—The metal in steel pipe piles is confined to the periphery of a circle, thus furnishing maximum utilization of material and maximum strength from the structural point of view. Filling the pipe with concrete further adds to its bearing capacity.

FEWER PILES REQUIRED FOR GIVEN LOAD—The very heavy loads which NATIONAL Seamless Steel Piles can sustain make it possible to design footings with fewer piles than with any other type of pile. Reduction in over-all footing size is particularly advantageous where space is limited—it offers less interference with existing utilities and other underground construction.

MORE EFFICIENT, FASTER DRIVING—The structural strength of NATIONAL Seamless Steel Piles permits the use of large hammers and hard driving that would destroy any other type of pile. There is no brooming or shattering to be concerned with, more energy of the hammer is transmitted into useful work, and driving is faster. Splicing, for extra-long piles, is quickly and easily done by means of internal sleeves.

PENETRATE WHERE OTHER PILINGS FAIL—Closed end steel pipe piles can be driven home despite boulders, cribbing, riprap, etc., where no other type of driven pile could go through. And open end piles go through obstructions under almost impossible conditions.

POSITIVE ASSURANCE OF RESULTS—Simply by lowering an electric light into the hollow pipe, alignment and condition of the pile can be continuously checked. When using open end pipes, the actual bearing area can be examined and an even bearing assured by churning or spudding through the pipe.

Invite NATIONAL engineers to discuss your foundation problems with you. Let them show you how this service-tested piling has saved time and money in many of the country's most exacting projects. You'll find their cooperation helpful regardless of the size and difficulty of the job.

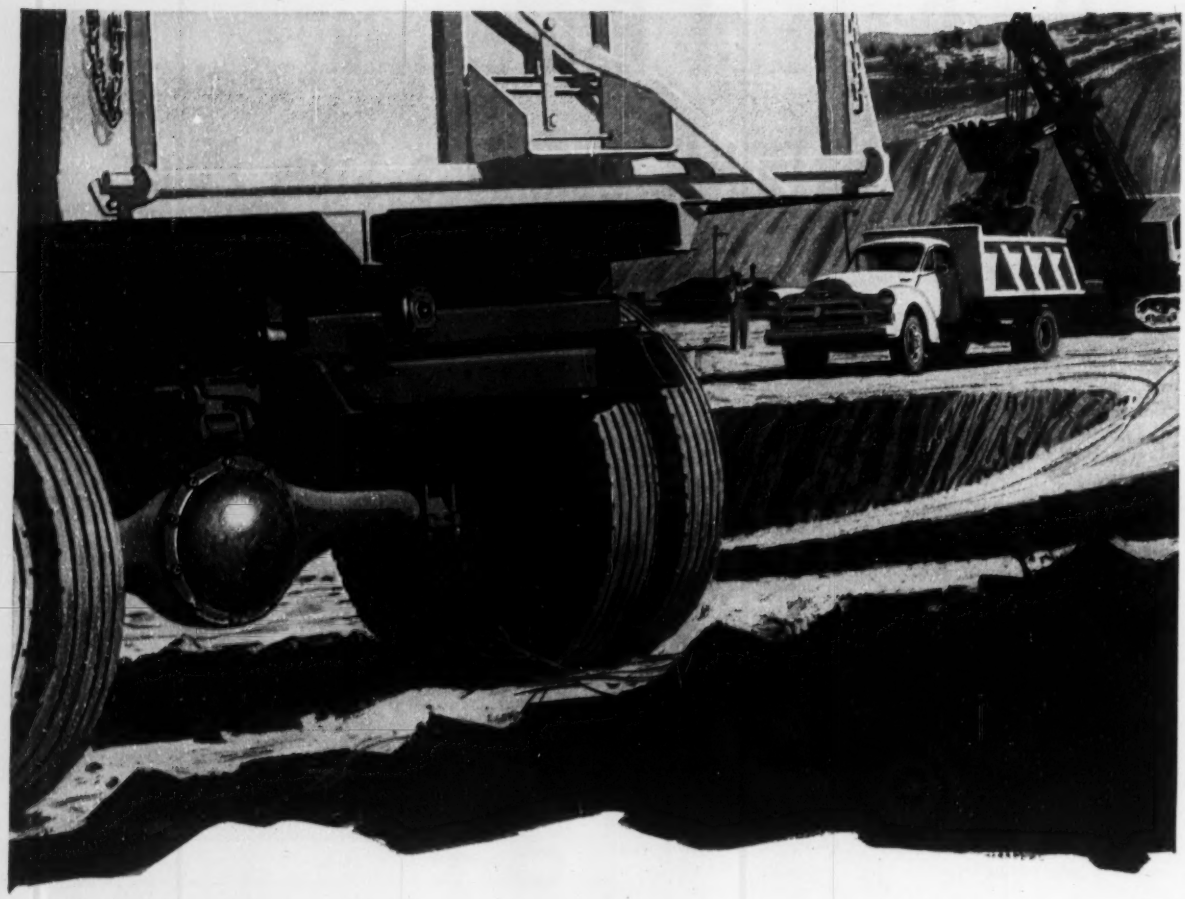
ROW OF DRIVEN STEEL PIPE piles, not yet cut to uniform length. Pile driver is seen in background. Below are steel piles cut to proper lengths and filled with concrete.

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

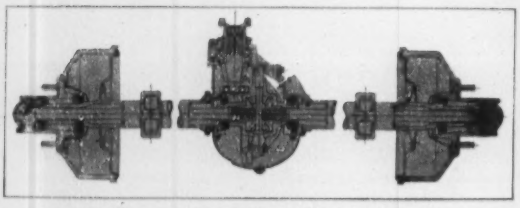
WALLS WITHOUT WELDS

USS **NATIONAL *Seamless* PIPE AND TUBES**

UNITED STATES STEEL



GLUTTONS FOR PUNISHMENT—CHEVROLET TWO-TONNERS with HYATT BARREL BEARINGS!



6 Barrel Bearings used in this Chevrolet 2-ton truck rear axle

Sheer stamina—the ability to "take it" year after year with minimum maintenance and maximum economy—has made this two-ton Chevrolet one of the world's most popular trucks. And in its rear axle—focal point for brutal punishment—you'll find six HYATT Barrel Bearings taking the brunt of it. Their ability to provide high load capacity with low friction—to automatically compensate for shaft deflection—has been conclusively proved in *millions of miles* of this troublefree truck service. If you have a similar bearing problem, take a tip from Chevrolet trucks—*and hand it to HYATT Barrel Bearings*—Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT

ROLLER BEARINGS

STRAIGHT BARREL TAPER

today—it's a bigger catch with MUSCLES OF STEEL

Five billion pounds of fish yearly. It's a catch that would make the oldtime Gloucester fisherman gasp—yet it's all in the day's work for America's modern fishing industry. And it's a job that couldn't be handled without the aid of *muscles of steel*—indispensable wire rope.

Whether off the Newfoundland Banks, along the Gulf Coast, or in the waters of the Pacific, powerful winch-equipped trawlers depend on Wickwire Rope to haul in their heavily laden nets.

On landlubber assignments, too, Wickwire Rope has a vital role in helping American industry do a better and more efficient job. In the oil fields and the logging camps. In the mines and the quarries. On construction and highway projects. In numerous and varied materials handling operations. On all of these jobs, Wickwire Rope consistently demonstrates its ability to deliver performance that is unrivalled for long-lasting economy and reliability.

***every* industry benefits from wire rope**

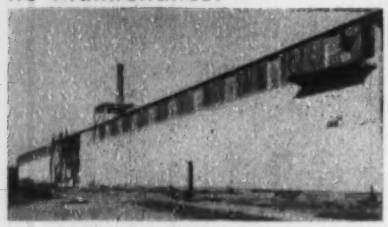
WICKWIRE ROPE

CF&I PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

2534

Stop This with RESOLITE

Shatterproof translucent panels save high labor cost of pane replacement . . . need no maintenance.



- **Rugged**—Shatterproof, strong as metal, fiberglass-reinforced Resolite has *unlimited* life without protective treatment or maintenance. There are no broken panes to replace.
- **Low cost**—Skylights and sidewall lights are installed at *half* the cost of regular glazing material. Resolite nests with and is fastened like any corrugated metal or asbestos sheet. It requires no special framing or flashing . . . is installed with ordinary tools by workmen with no special training. Where sash is specified, flat sheets, factory-cut to size, are installed like glass.
- **Better light**—Resolite daylighted buildings are filled with bright, evenly distributed daylight . . . diffused light that prevents glare, reduces eyestrain. Packaged Resolite vented units designed for easy installation with Resolite or other corrugated material are available in many sizes.
- **Other uses**—Resolite is also ideal for partitions and decorative facings of all types. Anywhere a combination of light, strength and beauty is desired Resolite is the answer. A complete line of accessories for easy, trouble-free installations is available.

For further information see Sweet's Plant Engineering, Architectural or Industrial Construction Files or Write:

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READER COMMENT

Flat-plate bibliography

SIR: M. G. Dempster requested in his letter in ENR July 22, p. 12, references to theoretical design methods for flat slabs. The editor referred to recently published textbooks and building codes. One of the recent books is Prof. Dunham's "Theory and Practice of Reinforced Concrete" (3rd Edition, 1953, McGraw-Hill Book Co.).

Most of these books and the building codes contain formulas and moment coefficients for average conditions and certain types of loading. It is evident that the most unfavorable distribution of heavy uniform live loads and concentrated loads considerably affect the values of bending moments. Theoretical or experimental stress-analysis should be used for such special cases. (See S. Timoshenko's book on plates and shells and Henri Marcus' book on elastic plates.)

Reinforced concrete flat slabs were originated in 1906 by C. A. P. Turner, of Minneapolis, who called them "mushroom floors." Their stress analysis is very complicated because of drop panels and capitals. Yet, Turner's innovation found broad application in Europe. I designed this highly economical type of concrete floor in 1913 in Switzerland, where Robert Maillart previously had used this construction. (See my papers in "Beton and Eisen," International Review of Concrete Structures, edited by F. V. Emperger: "Recent American tests of flat-slab floors," vol. 16, No. 17 and 18, 1917; "Recent constructions of flat-slab floors, especially in the U. S.," vol. 18, No. 9, 10 and 11, 1919; "New automobile plant in Prague—the first construction of mushroom floors in Austria," vol. 17, No. 2 and 3, 1918.)

Later, I carried out experiments on this type of monolithic slab, and from the results, I developed theoretical methods of analysis, which were also used for the design of shells and other types of space structures; e.g., for spiral ramps of Frank Lloyd Wright's proposed Museum of Non-Objective Art in New York City.

Usually, the live load on a flat-slab floor is very high. Its most unfavorable distribution should be considered, especially for long spans and lift-slabs, for which maximum bending moments should be determined by exact analysis. Building-code formulas are primarily intended for flat slabs with dropped panels and capitals, which have a different moment distribution from that for typical lift-slabs, especially during lifting. I will gladly furnish on request the results of my studies and answer other questions pertaining to this subject.

J. J. POLIVKA
Consulting Engineer
Berkeley 8, Calif.

Highway interchange design

SIR: From a study of the aerial view of the Ritchie-Revell interchange near Annapolis, Md., on p. 21 of the July 22 issue of ENR, it would appear that means for traffic to move smoothly from North Severn to Washington have not been provided. This apparent shortcoming brings up the question of why a clover-leaf type of interchange would not have been successful at this location.

J. B. STETSON
Arlington, Va.

SIR: In determining the interchange arrangement to be used at the Ritchie-Revell site, both the clover-leaf and the direct-connected types were studied. After thorough consideration, the direct-connected type was selected since it provided for the major traffic movements by direct routes through the interchange, and required somewhat less right-of-way. The volume of traffic from North Severn to Washington and from Baltimore to North Severn will be very light after bypassing facilities, now under construction, are completed the latter part of this year.

We note in the caption under the picture of this interchange in the July 22 issue of ENR that the statement that the Wright Contracting Co. "built the three-railroad grade separation" is incomplete. The work constructed by the Wright Contracting Co. consisted of three railroad grade separations and the highway work west of the Baltimore & Annapolis R.R.

H. H. ALLEN
J. E. Greiner Company
Baltimore, Md.

Wall costs clarified

SIR: The article on the Hartford Statler Hotel (ENR June 10, p. 31) was an exceptionally interesting, informative and widely read article. We have received many comments and requests for information from builders and architects throughout the country as a result. Your contribution to curtain-wall construction has been great.

(Continued on page 12)

'TWINS' CUT COSTS...

COMING and GOING!

Because of their tremendous power and traction, Euclid Twin-Power Scrapers get big loads easier and move more pay yards per hour than any other scraper of comparable size... they maintain high production on jobs where other scrapers just can't operate efficiently.

On a 2½ million cu. yd. section of the New York Thruway near Kingston, John Arborio, Inc. has used 7 "Twins" to move extremely difficult material... ranging from river sand to wet clay. On a complete cycle of about 8,000 ft. the "Eucs" moved up to 40% more bank yards per hour and maintained average travel speeds 2 m.p.h. faster than "high speed" competitive scrapers. The "Twins" had plenty of power and traction to haul loads of 17 bank yards on grades up to 20%... they made the return trip from the fill in a hurry, too, thanks to their two engines with separate Allison Torqmatic Drives. Arborio also used a Euclid Loader with a large fleet of Bottom-Dumps, and Rear-Dump "Eucs" on this job.

Owners everywhere say the Euclid Twin-Power Scraper is the most versatile "one man earth moving spread" they've ever seen. If you haven't seen "Twins" in operation, ask your distributor for a copy of the new descriptive folder, Form 551, before you bid your next job.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

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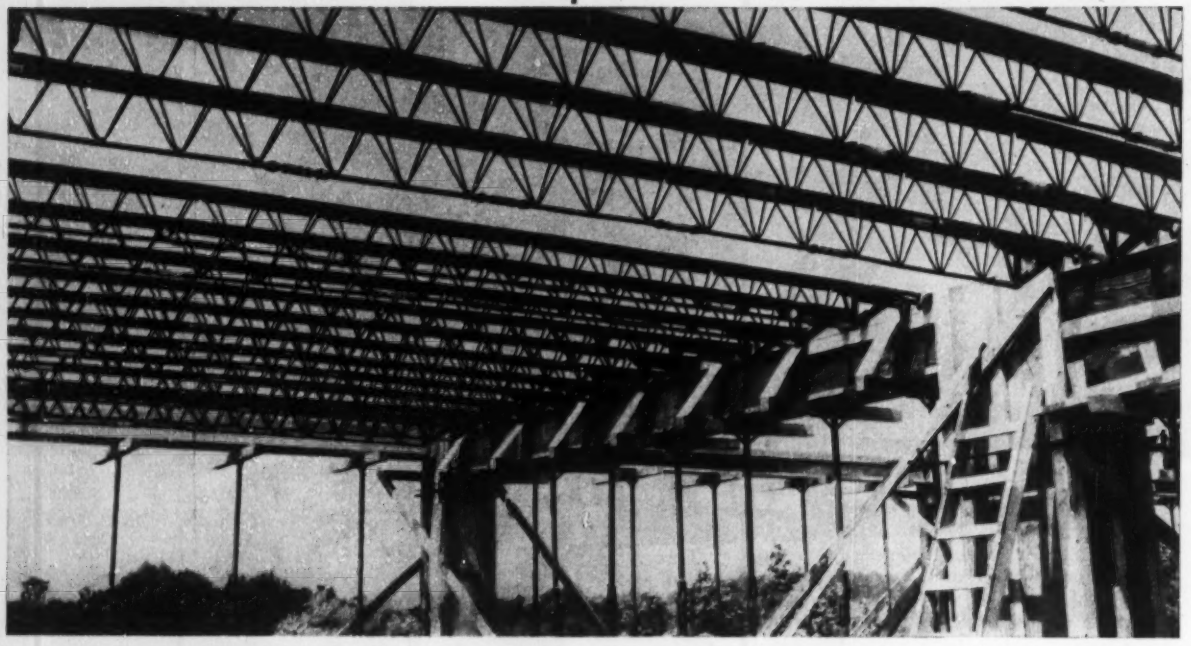

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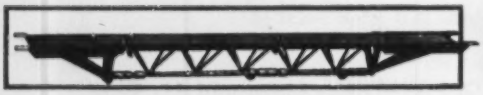

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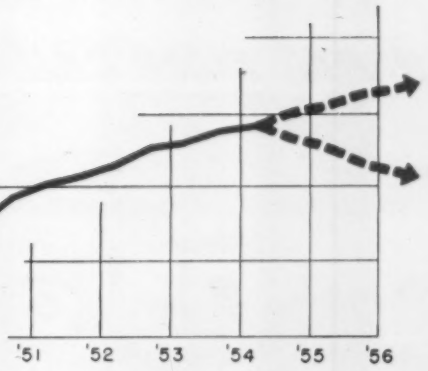

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READER COMMENT

We were again fortunate to have participated in the Grumman Aircraft installation, which you described in ENR July 29, p. 32.

Our only criticism of these articles lies in the fact that the prices for the material—the panel manufactured by Seaporcel Metals, Inc.—are excessive. Due to the wide publicity given these figures, they may tend to discourage builders.

The article published June 10 gave the cost in place for the Statler wall as $5 per sq ft, whereas a realistic figure is about $2 per sq ft for the material and only a few cents more for erection. The article published July 29 stated that 3,500 sq ft were installed at a cost of $6.30 per sq ft. A realistic figure is $4.50.

LEONARD R. NACHMAN
Seaporcel Metals, Inc.
Long Island City, N. Y.

[EDITOR'S NOTE—The costs given in the article were for the walls in place, including supporting framework.]

CALENDAR

Public Works Congress of the American Public Works Association, Claridge Hotel, Atlantic City, Sept. 19-22.

Society for Experimental Stress Analysis and International Congress and Exposition: Bellevue-Stratford Hotel, Philadelphia, Sept. 21-23.

Southeastern Association of State Highway Officials, annual meeting, Andrew Jackson Hotel, Nashville, Tenn., Sept. 28-30.

Pacific Coast Building Officials Conference, annual convention, Cosmopolitan Hotel, Denver, Oct. 5-8.

Federation of Sewage and Industrial Wastes Associations, Netherland Plaza Hotel, Cincinnati, Oct. 11-14.

National Conference on Industrial Hydraulics, annual meeting, Sheraton Hotel, Chicago, Oct. 14-15.

Structural Engineers Association of California, Hotel del Coronado, Coronado, Calif., Oct. 14-16.

American Society of Civil Engineers, annual convention, Hotel Statler, New York City, Oct. 18-22.

American Institute of Steel Construction, annual convention, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 25-28.

Plastics in Building, conference sponsored by Society of the Plastics Industry, Inc., the Manufacturing Chemists' Association, and the Building Research Advisory Board, at the National Academy of Sciences, Washington, D. C., Oct. 27-28.

American Concrete Institute, regional meeting, Statler Hotel, Los Angeles, Oct. 28-29.

Engineers Council for Professional Development, annual meeting, Alms Hotel, Cincinnati, Oct. 29-30.

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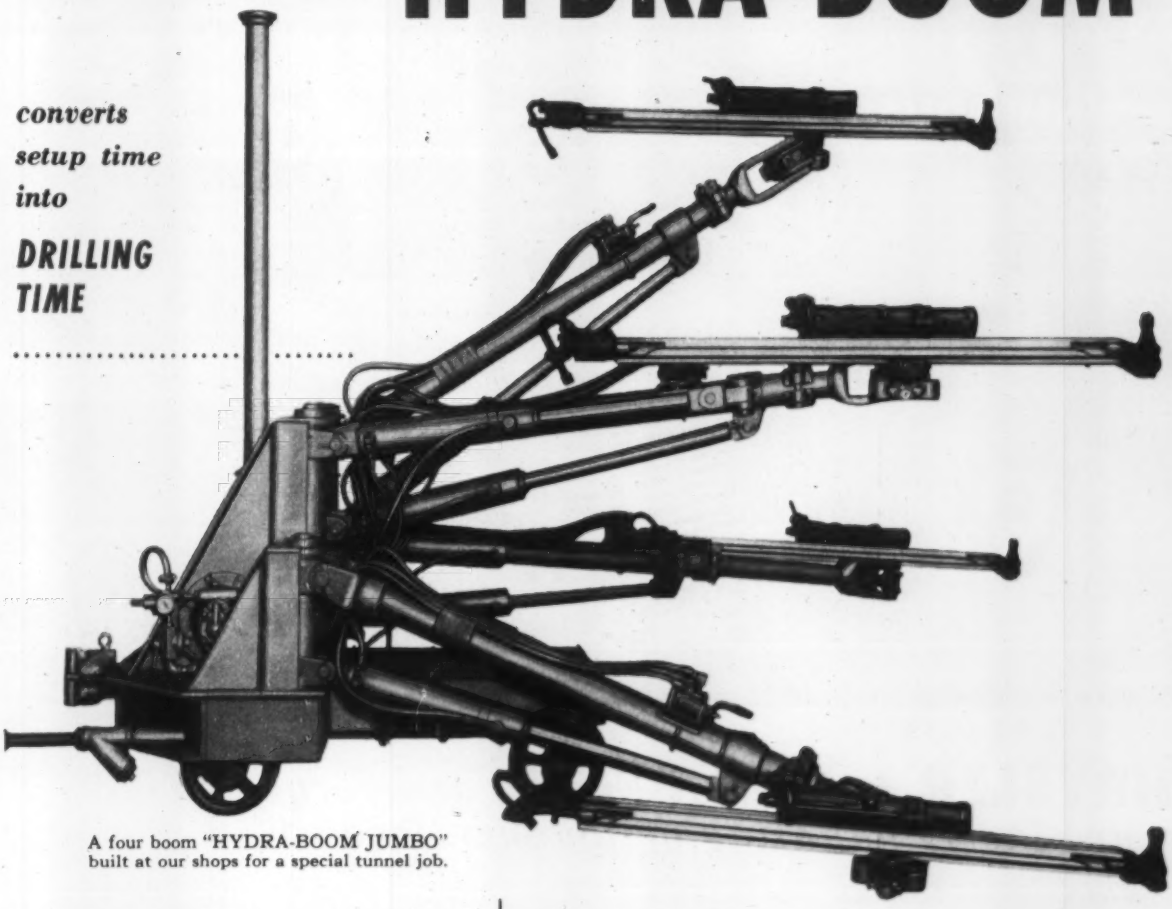

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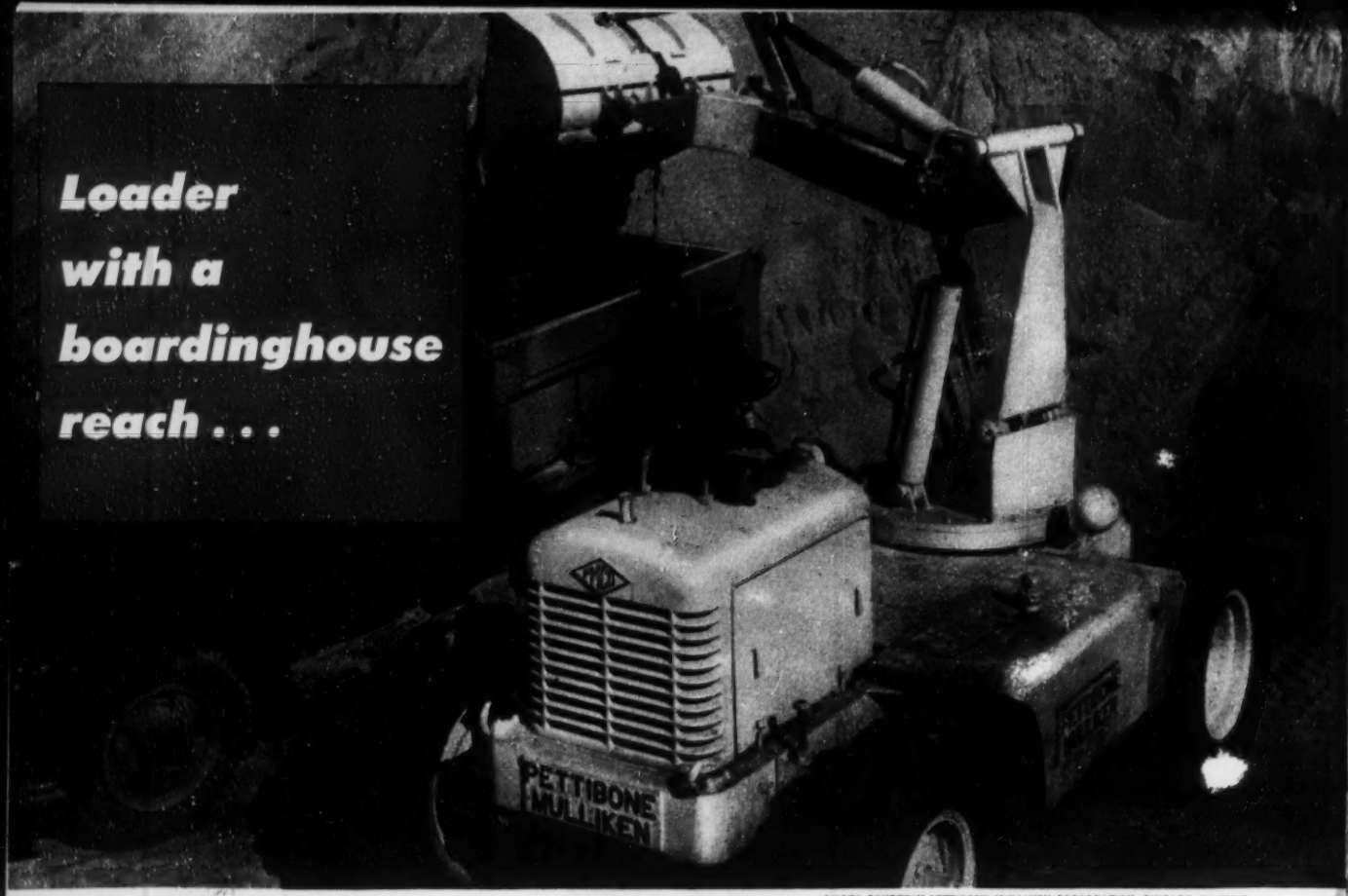

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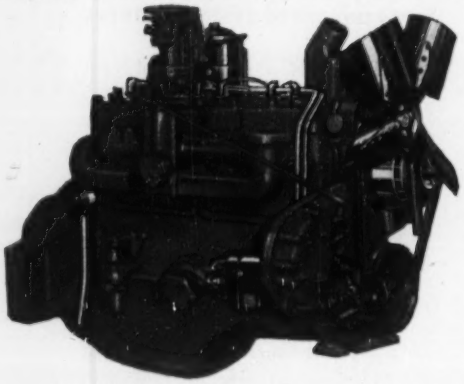

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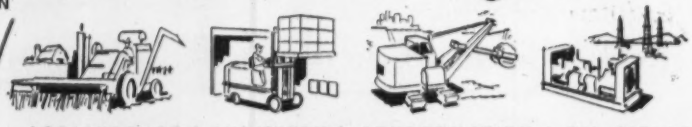

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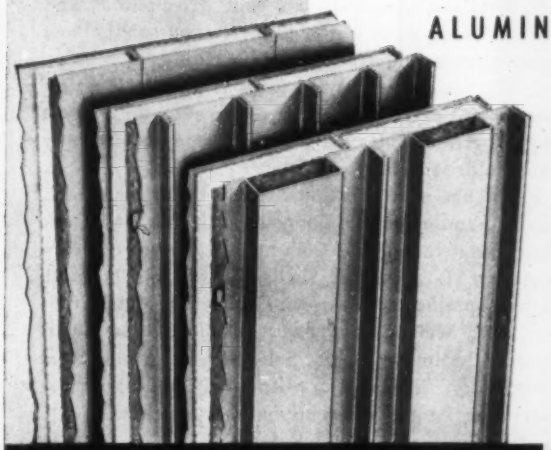

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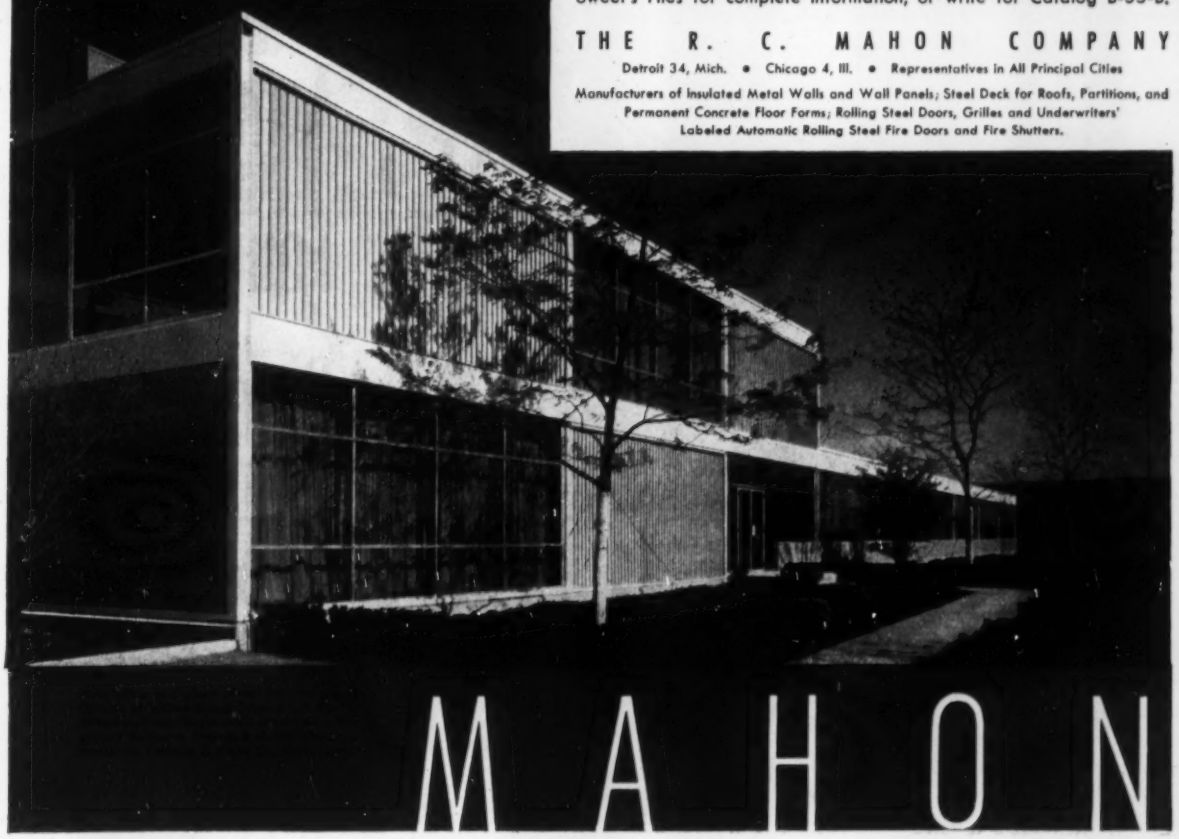

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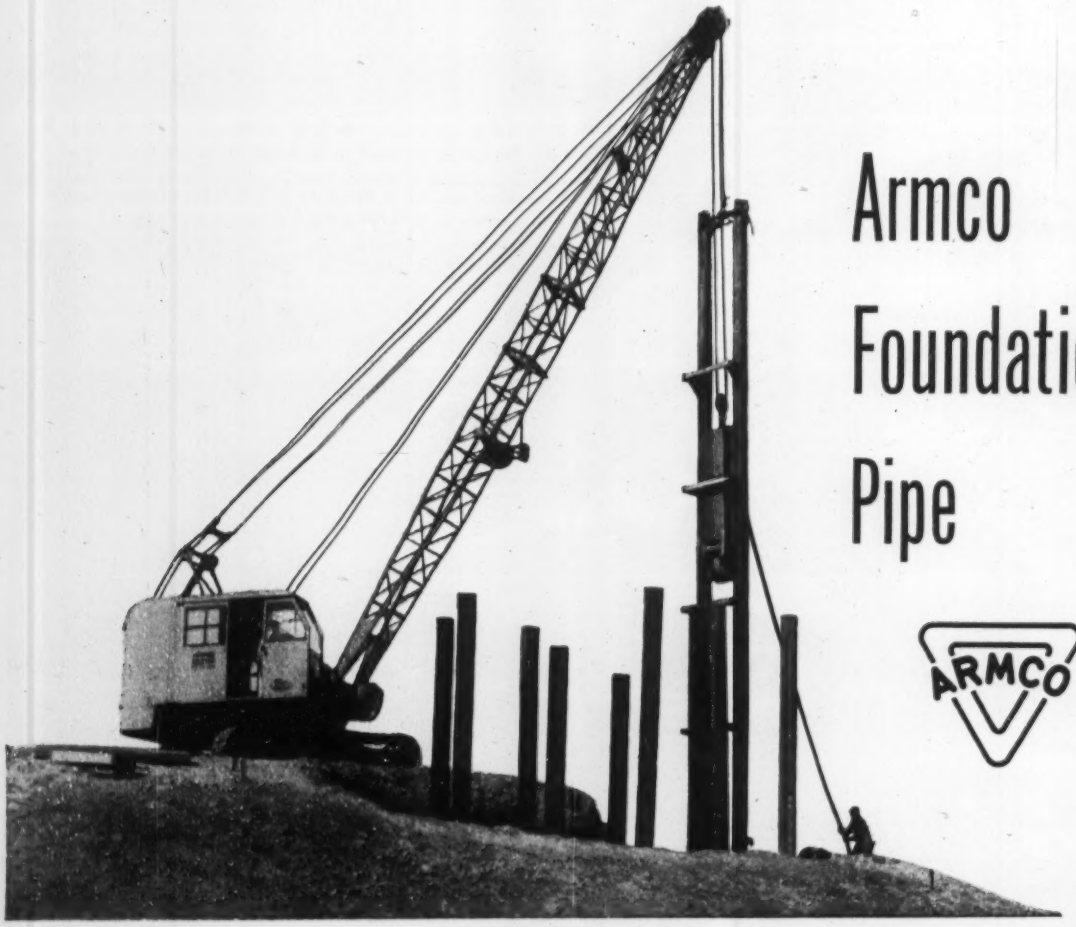

Armco Foundation Pipe

ARMCO

ENGINEERING NEWS-RECORD

Vol. 153, No. 12 September 16, 1954

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THE CONSTRUCTION WEEK

BIGGEST OFFICE BUILDING—Announcement that plans are under study for an office building—bigger than the Empire State—to capitalize on the air rights above New York City's Grand Central Station is being greeted with skepticism by construction men who know something about what it would cost to sink the foundations down through the complicated maze of structure beneath the famed terminal. But, their skepticism is tempered by realization that Robert R. Young, new board chairman of the New York Central Railroad, likes to do spectacular things. And, no less is true of William Zeckendorf, head of Webb & Knapp real estate organization now studying the Young proposal. Young, in his celebrated fight for control of the New York Central, criticized the old management for failure to cash in on its air rights, so he is on a spot.

RESEARCH CENTER—The Structural Clay Products Research Foundation, founded by the brick and title industry in 1950, will construct a research center in the Chicago area. Originally conceived as a five-year program, it was made a permanent organization by vote of the industry a year ago.

TURNPIKE TROUBLES—Political clouds have cast shadows of delay on a toll road for the Sunshine State. Last week in Tallahassee, bond-validation proceedings for the turnpike's initial section, 110 miles north from Miami at an estimated cost of $89 million, were recessed to allow time for the project's opponents to prepare briefs. It now appears certain that a series of legal moves will delay a final decision until January, when Democratic governor-nominee LeRoy Collins is expected to take office. Collins, one of the present project's most outspoken critics, is likely to appoint a new turnpike commission and ask the legislature to authorize a state-long turnpike, most of which would be located in the central part of the state instead of along the east coast as now projected. Tourists' interests north of Palm Beach have been violently opposed to the east coast location, and at least one influential person, State Rep. J. A. Boyd, Jr., new chairman of the road committee in the lower house, has come out for the central Florida route.

AN END TO CREEPING?—So that they can be expanded to house future units, most steam power plants are built with temporary end walls. A correspondent in Sheffield, Ala., reports the temporary end wall at the west end of TVA's Colbert steam plant is of new design. "It is called a permanent type temporary end wall—lovingly nicknamed the 'Ike wall' here on the job."

where flooding sunlight sets new tasks for piping

LEVER HOUSE

shades operating costs with JENKINS VALVES

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Where such extensive use of glass permits direct penetration of sun heat along with sunlight, interior comfort is largely dependent upon efficient, year-round air conditioning. At Lever House, for example, a high velocity duct system, served by two steam turbine centrifugal compressors, supplies 700 tons of refrigeration for three separate air-conditioning zones. Individual window units cool or heat the periphery of each floor as required. Air from such areas re-enters the ducts, is blended and discharged through centrally located ceiling diffusers, keeping temperatures in balance over the entire floor.

The serious consequences of failures and interruption of such facilities required careful selection of all components on the basis of proved dependability, safety, and long-range maintenance economy. Jenkins Valves were chosen after thorough study of performance records in all types of service.

Jenkins Valves are being specified for more and more of the news-making structures that are pacing the advance in architectural design. It is a repeated expression of confidence in their *extra measure* of efficiency and economy.

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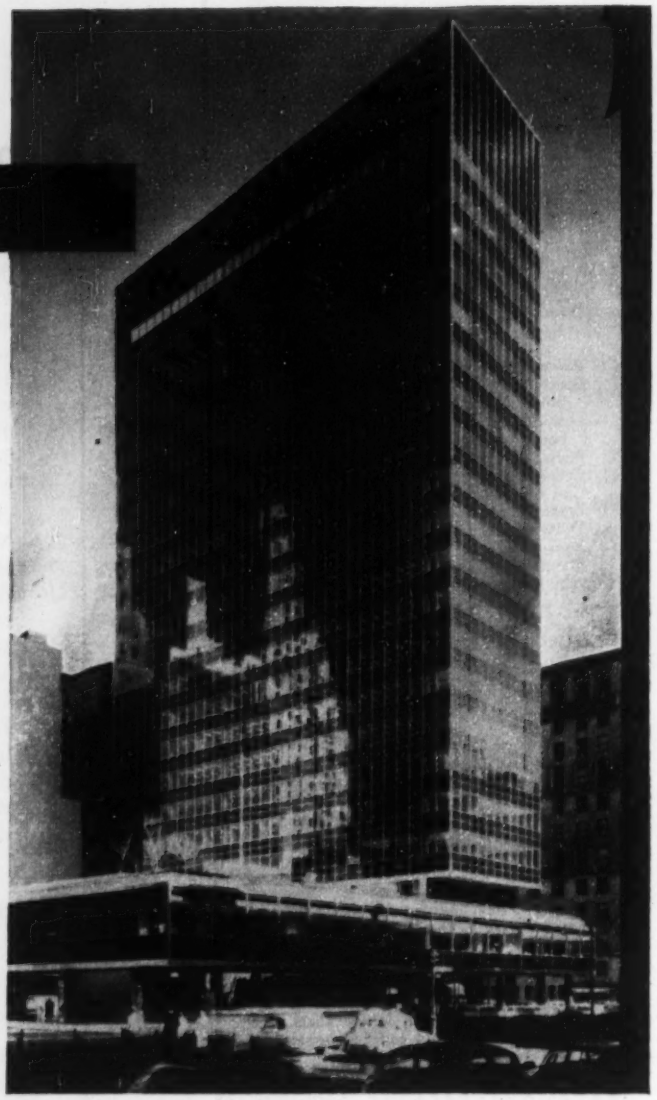
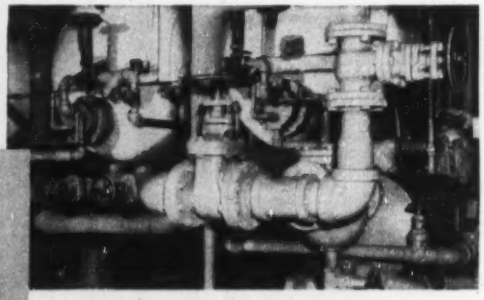


A slim, gracefully proportioned tower of green-tinted glass and polished stainless steel, Lever House provides efficient, comfortable working quarters for more than 1200 employees of the world-famed Lever Brothers Company and its three divisions. It has won wide acclaim as a major contribution to progress in the design of modern commercial structures.



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WASHINGTON OBSERVER

A new government corporation to finance Eisenhower's $50-billion road program seems to be in the cards. This kind of arrangement will provide what the Administration needs: a method of increasing highway construction by $5 billion a year for 10 years without having a huge cash outlay show up in the federal budget.

The governors were wrestling with this problem in Chicago this week—and so is an Administration group being assembled by Gen. Lucius Clay, one of Eisenhower's top trouble-shooters.

What's needed is a highway agency or authority to float bonds of its own, and guarantee bonds of other road-building agencies—state governments, toll highway authorities, such interstate agencies as the Port of New York Authority. The federal agency would borrow money and actually disburse it for highway construction—but the disbursals would not show as federal spending in the same way as the government's $600 million per year now being spent in highway grants to states.

Instead, only each year's payment of principal and interest would show in the budget. The idea is to do for highways what the lease-purchase program is doing to get federal post offices and office buildings built without paying out the full cost immediately.

•

Key to the whole program is Congress, of course. Administration officials and the state governors know this—and are planning to propose only what they feel sure Congress would approve. The key point is this: Will the annual increase in federal spending on highways be handled without requiring an increase in federal taxes? Washington officials say there's a way to put the program over without an increase in the two-cent federal gas tax.

•

Naming of General Clay to tackle the financing problem indicates the importance the Administration puts on the new construction program. There is no one inside or outside the government who is closer to Eisenhower than Clay.

Clay is tapping experts from the banks, insurance companies and similar sources for suggestions on how the trick is to be done.

Pressure is on to come up with answers Eisenhower can give to Congress in one of his messages next January. This means that things could get going, conceivably, by about a year from now.

•

Government's survey of plans for local public works will be a sampling job conducted by the Bureau of Census. The original idea of getting reports from every local government had to be dropped for lack of funds. As things stand now, HHFA and Council of Economic Advisors are working out the final mail questionnaire with Census officials for states, towns, and cities. There'll be little if any field work on the survey.

Officials want a picture of plans by kind of construction—broken into projects for which plans are complete, those for which plans are being prepared, and those which are definite but without a starting date for plans.

Object is to have an indication of how fast you can start public works construction upward if and when the government wants to boost such activity as an aid to business. Hope is to have questionnaires out and back before the first of the year. Results will be used to show Congress that federal assistance to local governments for planning public works is an inexpensive reservoir of potential construction that can be tapped without delay when needed.

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A few of the new LS-68's big advantages

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BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

Power policy: a key issue in election battle

Public power Democrats attack partnership idea as Republican "give away"

Administration power and water policies are heading for a ballot box test that may determine whether Republicans or Democrats control the next Congress. The political battle that is shaping up also will have an important effect on future development of the nation's power and water resources.

President Eisenhower's "partnership" policy, opening the way for larger private and local investment in power and water development, is under heavy fire from public power Democrats.

Especially in the Northwest, Democrats have revived the old public-vs.-private-power argument and blown it up into a major campaign issue. They are attacking Republican policies as "give aways." They charge the Administration with handing over to private enterprise valuable national assets—like damsites—that should be kept in the public domain.

Republicans are fighting back. They argue that power and water development will move ahead faster if they are not wrapped up entirely in the always-overburdened Federal Budget. And they say state, local and private interests should have more authority and responsibility for resource development.

What makes the politics of power so important now is this:

- The fight for control of the next Congress can be won or lost in just a few key districts. Democrats need a net gain of only one seat in the Senate and three in the House to win majorities at both ends of the Capitol.
- The battle must be fought largely on issues of local or regional importance—like power. Neither party can go to the voters with a big national issue—foreign policy, communism in government or the high cost of living.

- **Hell's Canyon**—In the Northwest, a real political storm is brewing over development of the Snake River in the mile-deep Hell's Canyon reach along the Idaho-Oregon border. This is a major issue in the Senate races in both Oregon and Idaho and in a number of congressional districts of the two states.

REPUBLICAN Sen. Henry Dworshak backs Administration power project vs. . . .

The question here is whether the federal government should build a high, multiple-purpose dam at Hell's Canyon or allow the Idaho Power Co. to build three low-head dams there. The Idaho Power Company's application to get started with its project is now before the Federal Power Commission.

In Idaho, both Republicans and Democrats have made Hell's Canyon a formal campaign issue. Former Sen. Glenn Taylor, the cowboy politician who stepped out of the Democratic Party in 1948 to become Henry Wallace's running mate on the Progressive ticket, is arguing for the high dam as part of his effort to unseat Republican Sen. Henry Dworshak.

DEMOCRAT Glenn Taylor, a former senator campaigning for public power.

In Oregon, veteran Republican Sen. Guy Cordon, who has supported Administration power policies, is up against a stiff fight from young Democratic State Sen. Richard Neuberger, an all-out champion of federal resource development.

The Oregon Senator race will get added emphasis from two outside champions of the contestants. Interior Secretary Douglas McKay will be campaigning for Cordon. And Sen. Wayne Morse, an outspoken foe of Republican power policy, already has entered the battle on the side of public power Democrats.

President Eisenhower, too, is expected to talk power politics in Oregon Sept. 23 when he dedicates the big McNary Dam and powerhouse at Pendleton. On the same night, Morse will speak at a Jefferson-Jackson dinner in Wenatchee, Wash.

- **Upper Colorado**—Probably the issue with the most widespread political impact in the West is the $1-billion Upper Colorado River water storage project. Power, water diversion, irrigation and conservation all are involved in the Upper Colorado plan.

A bill authorizing the project failed to reach the floor of the House and was trampled in the Senate's last-minute rush. But it will be revived in the next session, and already Upper Colorado has become an important political issue in the West.

The battle over the project does not break down on party lines. In California, candidates of both parties are against it. California wants the water that would be diverted to other states by the Upper Colorado project. Rep. Sam Yorty, Democratic candidate for the Senate, is charging that Republican Sen. Thomas Kuchel didn't do enough to bottle up the authorization bill, and Kuchel is saying he did everything possible.

In other western states, politicians

(Continued on page 22)

Special FHA investigator recommends measures to prevent windfall profits

A good share of the blame for windfall profits on FHA rental housing projects can be attributed to deficiencies in cost estimating and land appraisal together with laxity in architectural requirements and construction inspection.

This observation was among a variety of adverse findings on FHA operations contained in a report submitted this week to Housing and Home Finance Administrator Albert Cole by his special investigator, William F. McKenna. When the housing scandals broke five months ago, Cole brought McKenna into FHA as his deputy for the purpose of conducting a full-scale probe of FHA.

The McKenna report discloses that some of the same abuses and irregularities charged against FHA's Section 608 projects have been uncovered in other programs of the Federal Housing Administration. In addition to the already well-publicized fleecing of householders on home improvement loans, McKenna listed questionable practices on multi-family projects, including Wherry Act and cooperative housing, and to a minor degree on sales housing.

• **Recommendations**—The basic corrective action suggested to Cole is fuller use of his newly-delegated power over the administrative funds of all HHFA constituent agencies, including FHA. This authority gives Cole nearly absolute control over policies, practices and personnel in FHA and the other agencies.

Second major recommendation is that investigative authority and activity be continued in a permanent compliance division of HHFA—a move already decided upon.

The McKenna report further recommends that:

• Annual budgets for FHA operations be related to volume of business, in order that the agency may do an adequate job of valuation, cost estimating and inspection.

• Authorizations for outside activities of FHA employees—some of whom have performed architectural and other work for applicants—be closely limited and controlled.

• Gratuities mean instant firing of the employes that accept them and blacklisting of firms offering them.

McKenna's recommendations on rental housing are pretty well carried out in the 1954 housing law. Cost certification, for example, cuts out almost entirely the possibility for windfall profits on an FHA project. Other changes, such as prohibiting mortgage insurance of leasehold sites, are up for consideration. The leasehold arrangement can no longer be used to get a bigger mortgage for an apartment house, under FHA's present rules.

• **Other observations**—Section 608 cases stand out as the major item of the investigation. McKenna and his special investigations office analyzed 1,547 projects indicating possibility of windfall profits. In 1,410 of these, the report said, proceeds of FHA-insured mortgages were found to be greater than project costs.

As the total of Section 608 project mortgages insured by FHA was 7,031, the McKenna findings indicate more than 20% of the projects may be in the plush windfall category.

On 608 projects, the report lists other abuses besides profits out of borrowings under the mortgage. They include profits to promoters who formed separate construction or subcontracting corporations, who retained ownership and collect rent on the lands occupied by the project, who received large rental sums from tenants before mortgage amortization started, and who paid excessive fees to associated companies.

POLITICAL WEATHER MAP shows that power is a stormy political issue in the Northwest and may cause disturbances in other western states. But in the East, the outlook is clearing after the recent blow over TVA.

. . . Power is campaign issue

(*Continued from page 21*)

of both parties are for Upper Colorado. In Wyoming, for example, former Sen. Joseph O'Mahoney, the Democratic candidate in the Senate race, is fighting his Republican opponent, Rep. William Harrison, by predicting that as long as two Californians, Senate Majority Leader William Knowland and Vice President Richard Nixon, remain in control of Senate affairs Upper Colorado will never get through.

In Utah, failure of the measure to get passed caused bitter disappointment. There is no Senate race in Utah this year, but both of the state's two Republican representatives are battling against Democrats who charge that they didn't do enough to get Upper Colorado over.

• **Dixon-Yates plan**—The controversial Dixon-Yates contract in the TVA area of western Tennessee and Eastern Arkansas will be a campaign issue in both states, but doesn't stand a chance of making serious trouble for Democratic incumbents.

Democrats, however, are expected to assail Dixon-Yates as an example of a Republican "give away." They will try to use the controversy nationally to illustrate their criticism of Republican power policy.

Republicans, on the other hand, are showing no reluctance to accept this challenge. They are defending Dixon-Yates as the Republican way to meet the demand for more power.

But now that the initial, heated debate over the subject has died down somewhat, neither party expects Dixon-Yates to be a really important issue in the campaign, either nationally or locally.

Spanish contractors submit bids for first major U.S. base job

Construction bidding on U. S. military bases in Spain got off to a promising start last week. Thirteen Spanish firms competed for the first major subcontract to be offered, a $4 million-plus job on a portion of Torrejon Air Force Base near Madrid.

Preliminary reports from Madrid on the bid opening gave a strong hint that the bid prices looked good to the bureau of yards and docks, construction agent for the program, and to its prime construction contractor, the Brown-Raymond-Walsh team. The bids apparently showed that the Torrejon subcontract could be built within the cost estimates.

The response on this first real test brightened the outlook for award of other subcontracts. The total program may cost more than $250 million and take four to five years to complete.

A steady flow of construction contracts is planned. On Sept. 22, bids are to be opened at Madrid for an estimated $2.5 million to $3 million job on Zaragoza Air Force Base.

Within the next month or two will come bid openings for two other jobs. First will be a subcontract for warehouses, communication facilities and petroleum storage at Torrejon. The second will include warehousing, air navigation aids and petroleum storage for Zaragoza.

A big dredging job at the Navy's East Rota site in Cadiz Bay also is in the works. Full data on this job are not yet in, but dredging is estimated at 4,000,000 to 6,000,000 cu yd.

Planned phasing of contracts calls for subcontract awards at an average rate of around one job a month. In addition to the three bases already mentioned, the present program calls for a pipeline from Cadiz Bay to Zaragaza, air force bases at El Copero and Moron, south of Seville, and three petroleum field tank farms at Cartagena, El Ferrol and Palma.

Contract procedure is a compromise between Spanish and American practice to get the end results desired without imposing a completely strange system on the Spaniards. The prime contractor supplies more of the materials than is customary over here and offers construction equipment to the subcontractor at stipulated rental rates. For the present, much of the material and nearly all the construction machinery are coming out of military surplus in North Africa and other places. As the program moves ahead, there will be more procurement of materials and equipment from outside sources.

First test of worldwide procurement comes this week on portland cement. Spanish production of cement is limited and the government controls the entire supply. To determine the price and availability of this material, bids were invited Sept. 15, on 30,000 metric tons to be purchased by the prime contractor.

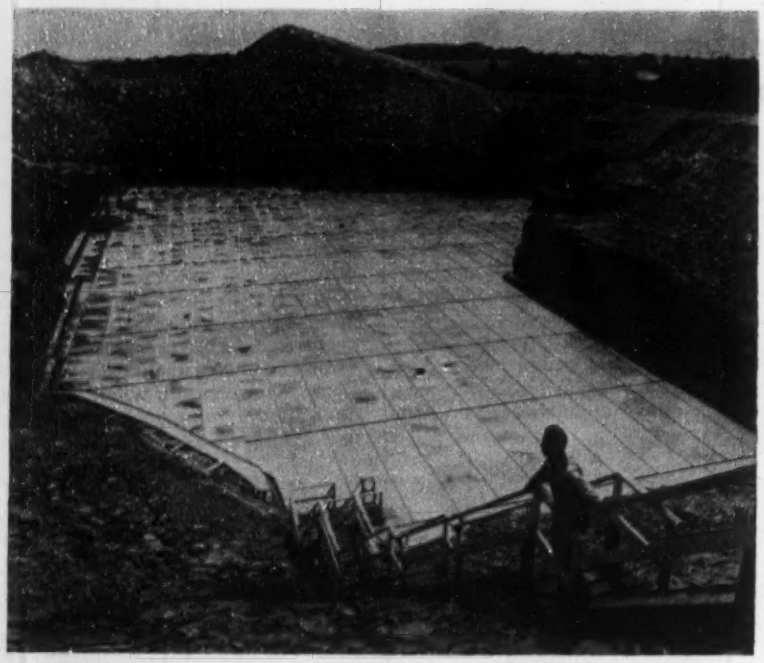
Similar practices will be followed in purchasing and supplying to subcontractors other materials that are in short supply or unavailable in Spain and for specialized products not obtainable in the specification range.

Construction equipment is offered to subcontractors at rental rates low enough to make mechanized construction more attractive than hand labor—but not low enough to invite abuse or wasteful idle time.

Further, each contract specifies that the prime contractor will furnish instructors at a stated rate to the subcontractor to teach operation and maintenance of the machines. Equipment manufacturers are aiding the instruction. Looking forward to future equipment demand, some American firms have set up schools in Spain.

A new tunnel into Manhattan

Muck comes up out of the construction shaft of a third Lincoln Tunnel tube under the Hudson River into New York City. Construction site is Weehawken, N. J., with the New York skyline across the river in the background. Tube's underwater section will be driven from this shaft, where shield installation begins this week. Self-dumping 6-yd bucket loads hopper which feeds shuttle car on construction-access bridge across railroad yard. When the approach section is complete and the shield is driven beyond the rail yard, a temporary access shaft will be sunk by the MacLean-Groove, Mason and Hanger, and Arthur A. Johnson companies, joint-venture contractor for the New Jersey approach tunnel and the under-river work. This construction shaft will become an air shaft.



Roofed-in slate quarry now stores oil

It cost Standard Oil Co. (N.J.) $500,000 to construct this oil storage reservoir with 42 million barrel capacity

Standard Oil Co. of N. J. has converted an abandoned slate quarry at Wind Gap, Pa., into a fuel oil storage reservoir with a capacity of 42 million barrels—the largest single oil storage facility anywhere in the world.

Company officials say the installation is "experimental." Results, they say, will have to be studied over a period of time. But many officials closest to the project believe it will prove to be the most efficient and most economical way to store large quantities of oil.

The quarry conversion job actually figures out to cost only $500,000—which is substantially lower than tanks with the same capacity would have cost.

The installation actually consists of two quarries—Alpha and Acme. Fuel oil is pumped from the company's Linden, N. J., refinery into Alpha, the larger of the two, through a 65-mi pipeline.

Simultaneously, water is pumped from Alpha into Acme, a short distance away.

As oil is pumped out of Alpha for use, water is pumped back into the quarry to maintain the surface of the pool at approximately the same level at all times.

Oil in Alpha, floating on the quarry's residual water, is always at least 20 ft below the top level of surrounding ground water so that pressure outside the quarry is greater than the inside pressure. This prevents losses of fuel oil.

Alpha quarry is 250 ft deep and irregular in contour. Roofing over its 87,000 sq ft of surface to protect the oil pool from contamination and evaporation was accomplished by a novel method.

The entire surface of the oil pool was covered with what amounts to a raft composed of 250 separate hollow steel pontoons fastened together by light, flexible clips. Most of these pontoons measure 32x2 ft. Others, built on the job, are irregular shapes to fit around the perimeter.

The raft fits to within inches of the quarry wall at all points. Neoprene-impregnated strips seal the joints between pontoons and between the sides of the quarry and the raft.

Rain or melting snow that falls on the raft as it floats atop the oil pool is carried down through the oil by small drain pipes set in each pontoon. The upper surface of the raft is painted with aluminum paint to reflect heat and reduce evaporation.

Tuscarora Pipe Line Co., Ltd., a subsidiary of Standard Oil Co. of N. J., built the reservoir and will operate it. D. P. Dugam, Tuscarora vice president, and Walter Fronheiser, chief operating engineer, supervised construction.

Water conservation

Indiana gets commission to study water problems and recommend legislation

Indiana is taking steps to set up a water conservation program to prevent the substantial losses caused by droughts in each of the last four years.

As in many other states (ENR Aug. 26, p. 21), scanty rains and lowering of underground water reserves has caused extensive damage to farm crops over a wide area of the southern part of Indiana.

To meet the situation, Lt. Gov. Harold H. Handley appointed a Legislative Advisory Commission to study the problem and prepare a legislative program for presentation to the 1955 General Assembly.

Handley said the commission would attempt to:

- Define the rights of industries and individuals to pipe water from streams.
- Encourage local communities to adopt water conservation measures.
- Survey the need for dam and reservoir construction to impound winter water.

The commission also will study means of financing the construction of water conservation projects. One suggested method was to ask the General Assembly to authorize the creation of drought or irrigation districts which would raise money on bank loans. On larger projects, state funds might be needed.

Virginia calls for first bids on Hampton Roads project

The Virginia Highway Commission has called for construction bids on the major portion of the $63 million Hampton Roads bridge-tunnel that is to link Norfolk and the Virginia Peninsula.

Bids will be opened Oct. 8 for construction of a 7,479 ft tunnel and two sections of approach bridges totaling 9,450 ft. Bids for mechanical equipment and approach highways will be called later.

The tunnel will have an underwater length of 6,750 ft. It will consist of 23 prefabricated tube sections, each 300 ft long. The tunnel roadway will be 23 ft wide and will have a minimum clearance between roadway and ceiling of 14 ft.

The north approach bridge will be 3,250 ft long. The south approach bridge, 6,200 ft. Each will have a 30-ft roadway.

Bids on a $100 million revenue bond issue to finance this and other projects are expected in about a month.

Probe 3 cave-ins

Honolulu engages engineer to study design of tunnel where cave-ins killed five

The City of Honolulu has retained a New York tunnel expert to examine the contracts and design for the Koolau Mountain traffic tunnel where work has been interrupted by three cave-ins, the last of which killed five men.

The expert is Francis Donaldson, vice president and special partner of Mason & Hanger Co., a heavy construction firm that has specialized in tunnel work. Donaldson was scheduled to arrive in Hawaii this week.

Mayor John H. Wilson of Honolulu (for whom the tunnel will be named) announced the engagement of Donaldson after J. Howard Bird, safety engineer for the U. S. Bureau of Mines, recommended a thorough review of the project before construction is resumed.

Bird made a study of the tunnel job and is preparing a written report. As a result of his oral recommendations, the Territorial Department of Labor and Industrial Relations issued a series of orders to the City of Honolulu and to the tunnel contractor, E. E. Black, Ltd., to be complied with before work is resumed.

• **Both the city and contractor** were told to:

• Construct a concrete bulkhead near the cave-in site, reaching from the floor to about half the height of the tunnel.

• Drive a 4-in. pipe through the cave-in material to determine if water pressure has build up behind it.

• **The contractor alone** was directed to:

• Provide five sets of oxygen breathing apparatus and train 10 persons, including foremen and supervisors, to use them.

• Provide ventilation and maintenance of diesel equipment to dilute noxious gases to a safe limit.

• Prohibit the use of gasoline engines in the tunnel.

• Connect fire fighting hoses to water lines at intervals of 200 ft.

• Equip all vehicles operating in the tunnel with fire-fighting equipment.

• Install telephone lines at a safe distance from electric transmission lines.

• Place protective guards on all movable parts of machinery used in the tunnel.

The Black firm started work on the tunnel last January and had pushed through 2,100 ft of rock when the series of cave-ins began.

NEW CITY of Silver Bay, Minn., rising in once desolate area on north shore of Lake Superior, and . . .

SILVER BAY port, with breakwaters, docks, power plant, storage facilities show how . . .

Taconite spurs construction boom

Construction of taconite mining facilities on the eastern end of Minnesota's Mesabi Range already adds up to a $500 million boom for the area and will amount to twice that much within a few years (ENR Jan. 1, '53, p. 28).

Three mining companies, largely owned and operated by U. S. steel producers, are investing heavily in taconite, the iron-bearing rock that is counted on to help fill the gap left by the dwindling supply of high-grade Mesabi ore.

Reserve Mining Co., owned 50-50 by Armco and Republic Steel Corps., is well along to completion with a $160 million program that is typical of the development work taking place.

At present the Reserve Mining Co. is engaged in building two towns, a port, and a 48-mi railroad in addition to mining, processing and storage facilities.

Reserve is making its biggest investment in the new town and port of Silver Bay which will become, second only to Duluth, the largest community on the north shore with more than 5,000 population. Babbitt, the other town Reserve is building, is inland on the ore range. A railroad that will cost $20 million to build connects the two towns.

Homes put up at Babbitt are factory-built at Biwabik, Minn., and transported to the townsite on trailers during the season when load limits on the roads are lifted. At Babbitt, the houses are set on blocks in a "house parking lot" until foundations are ready so they can be put in place.

Kansas Turnpike

Final feasibility report clears way for beginning detailed plans by Oct. 1

The Kansas Turnpike Authority shifted into high gear on its $140-million toll road venture last week, following receipt of a final feasibility report supporting a bond issue scheduled for completion by Oct. 1.

Two miles have been added to the original route at the Kansas City, Kan., approach. According to the report submitted by the authority's consultants, Howard, Needles, Tammen & Bergendoff, the highway, designed for speeds up to 75 miles per hour, thus will run for 236 miles to the Oklahoma border.

Assuming bond proceeds will be available, the authority expects to start detailed plans and specifications Oct. 1 and also the acquisition of 9,450 acres of right-of-way. Grading and draining in the southern Kansas Bluestem area is scheduled to start in January '55. Bridge construction would begin in February and actual paving would start in April.

The four-lane turnpike will have normal right-of-way width of 300 ft. At the right of each 24-ft lane will be a 10-ft shoulder, and on the left will be an extra 4-ft shoulder.

Toll schedule, starting from Kansas City, is: 75 cents to Lawrence, 75 cents to Topeka, $1.85 to Emporia, $2.85 to El Dorado, $3.15 to Wichita, and $3.80 to the Oklahoma line.

Florida engineers merge two professional groups

Merging of the Florida Society of Professional Engineers into a reconstituted Florida Engineering Society has been approved by the members of both organizations as a means for obtaining greater unity among the engineers of the state.

The merger presented some difficult problems for the constitution drafters because the present Florida Engineering Society has members who are not registered engineers and so are not eligible for full membership in an organization that would be recognized by the National Society of Professional Engineers as a "member state society." The solution was to provide for seven grades of membership.

The two full corporate grades are fellow and senior member, exclusively for registered professional engineers. These members will form the professional division of the new society, which, it is hoped, will be recognized by the NSPE as its representative state society in Florida.

Other grades are: member (for unregistered members of the FES), associate, junior member, student member, and EIT member (for registered engineers-in-training). Only senior members and fellows can hold office and have full voting powers in the new society, but members will have limited voting powers in matters of state interest.

Dues for fellows and senior members have been set at $18; for members and associates, $8; for EIT members, $7.50; and for juniors, $3.50.

Oregon city acts to build $7-million hydro project

The Eugene, Ore., Water & Electric Board has filed an application with the Federal Power Commission for construction of facilities on the Upper McKenzie River to add 30,000 kw of capacity to its present hydroelectric system on that stream. The $7-million Beaver Marsh project is scheduled for completion in the fall of 1957.

Power will be generated from water diverted from Clear Lake by means of a 7-ft-high diversion structure where the lake empties into the McKenzie River. Water would flow through an 8,400-ft-long pressure tunnel to the powerhouse at Beaver Marsh.

Additional construction includes a dam across Fish Lake, 3 mi north of Clear Lake. This would improve the fishing and recreational values of Fish Lake, according to an EW&EB announcement.

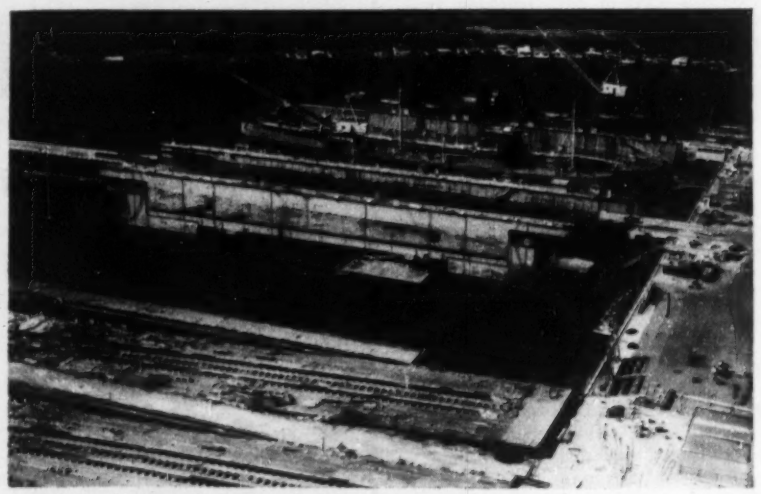
Jobs in the news

NAVIGATION LOCKS—The Corps of Engineers has awarded a $12.7-million contract to Guy F. Atkinson Co. and Ostrander Construction Co., for construction of the navigation lock at The Dalles Dam on the Columbia River. Completion date is Oct. 1956. Outstanding contracts for The Dalles project exceed $100 million.

OFFICE BUILDING—The largest privately-owned office building in West Virginia will be erected on an 18-acre site in Charleston under a purchase and lease-back arrangement. Financed and owned by the New York Life Insurance Company, the 11-story, $7-million air-conditioned building will be occupied by the United Fuel Gas Company. Douglas Orr, New Haven, designed the building; Richard Fletcher, New Haven, and Walter F. and Robert F. Martens, Charleston, are the architects. Southeastern Construction Co. is general contractor.

BRIDGE—The Bethlehem Steel Co. submitted the low bid of $6.9 million for erection of the viaduct superstructure on the Philadelphia side of the new Delaware River bridge between Philadelphia and Gloucester, N. J. This brings to $47 million the contracts let and bids received.

HOSPITAL—The George A. Fuller Co., N. Y., has been awarded a contract to build a $6.5-million addition to the Naval Hospital at San Diego. Welton Becket and Associates are the architects and engineers.



Self-docking dry dock self-docked

Two end sections of 14,000-ton steel floating dry dock lift center section out of the water and support it so the bottom of the hull can be inspected, cleaned and painted. Later, the two end sections were docked in the center section. This took place in Portland, Ore., and was the first such maintenance operation in the U. S. since this type dock was built early in World War II. The floating dock is the patented design of Frederic R. Harris, Inc., New York consulting engineers. It is owned by U. S. Navy Bureau of Yards and Docks and leased to the Port of Portland.

The handsome, all-metal, safety handrail quickly identifies the Peelle Motorstair. This handrail is positively driven and synchronized with the steps to travel at the same speed. Favored by leading insurance companies.

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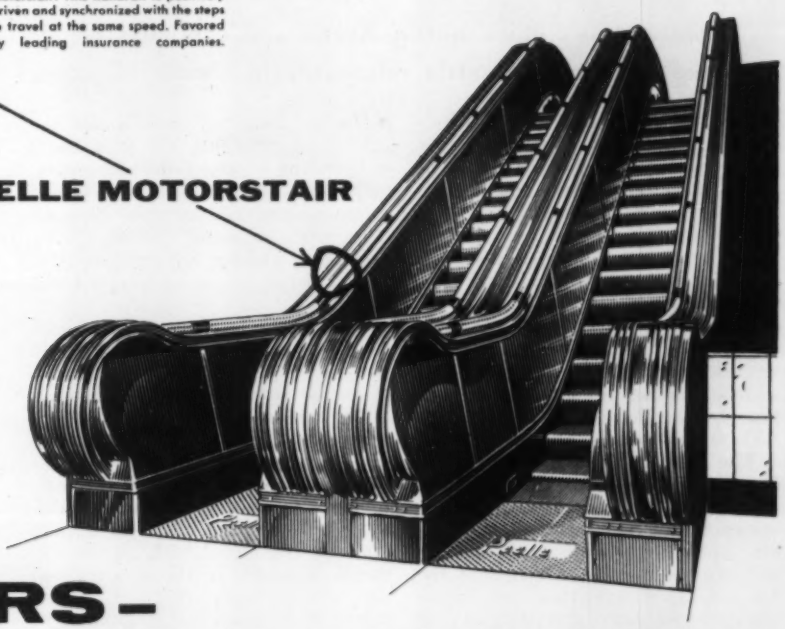

RE-ORDERS – the final test of sound engineering

Important and original engineering advances combined with crisp, contemporary styling are steadily increasing the acceptance for the Peelle Motorstair. But the final test comes when owners, architects and engineers commit substantial sums for re-orders. And that is what is happening. More than half the Peelle Motorstair installations being made now-a-days are re-orders.

A FEW OF THE MANY PEELLE MOTORSTAIR INSTALLATIONS

Those marked * have re-ordered from one to forty Motorstairs.

TRANSPORTATION

TORONTO TRANSPORTATION COMMISSION, Toronto, Canada
Architects, DeLeuw, Cather & Company, Chicago, Ill.
PORT OF NEW YORK AUTHORITY BUS TERMINAL, New York, N. Y.
Architects, Port of New York Authority Engineers
UNION PACIFIC RAILROAD COMPANY, Seattle, Wash.
WICHITA MUNICIPAL AIRPORT, Wichita, Kan.
Architects, Thomas-Harris-Calvin Associates
HUDSON & MANHATTAN RAILROAD
PENNSYLVANIA RAILROAD
GREYHOUND BUS TERMINAL, Kansas City, Mo.
*NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 84
*NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 57

PUBLIC BUILDINGS

PENTAGON BUILDING, Arlington, Virginia
METROPOLITAN MUSEUM OF ART, New York, N. Y.
Architects, Varhees, Walker, Foley & Smith
AMERICAN NATIONAL BANK, Austin, Texas
Architects, Kuehne, Brooks and Barr

HOTELS

STATLER
*HILTON

INDUSTRIAL

FORD MOTOR COMPANY, Livonia, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.
*BUICK MOTOR DIVISION, Building No. 36, Flint, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.
*BUICK MOTOR DIVISION, Building No. 44, Flint, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.
*GENERAL MOTORS SAGINAW GEAR DIVISION, Saginaw, Mich.
Architects, Argonaut Realty Co.
*ROCHESTER PRODUCTS DIVISION GMC, Rochester, New York
Architects, Argonaut Realty Co.
*FISHER BODY DIVISION GMC, Detroit, Mich.
Architects, Argonaut Realty Co.

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THE PEELLE COMPANY – 47 STEWART AVENUE, BROOKLYN 37, N. Y. – OFFICES IN PRINCIPAL CITIES

Jurisdictional peacemakers get results

Construction's union-management board continues to get feuding unions to settle voluntarily in almost all cases

It's a rare occasion when the construction industry's unique union-management board for settlement of jurisdictional disputes is required to work out a national agreement. For it usually manages to induce feuding unions to reach voluntary settlements.

When the board attempts next month to work out a national agreement defining work-rights on lift slab construction, it will mark only the seventh time in its six-year history that such action has been necessary. Repeated efforts have failed to bring five AFL unions together on this issue.

The argument is over which union should remove the side wall slabs after concrete has hardened. Unions involved are the AFL's carpenters, laborers, operating engineers, bricklayers and cement masons. Officials of the five unions will argue their cases before the nine-man board, consisting of four industry and four building trades representatives with Harvard Professor John T. Dunlop as impartial chairman.

• **Efforts have paid dividends**—In six years, the National Joint Board for the Settlement of Jurisdictional Disputes in the Construction Industry has played a role equal to its imposing title. A decline in jurisdictional strife in the building trades, particularly in the past two years, attests to the board's persistent pressure for voluntary agreements and its constant efforts to keep unions from striking over jurisdictional issues.

The board has dealt with more than 2,000 work stoppages and many more that didn't result in walkouts. Some of the knottiest disputes, which have been occurring with unwelcomed frequency, have been coming up at the nation's atomic energy sites. Part of the trouble stems from the new materials used on AEC installations.

Labor Department figures show a decline in inter-union warfare resulting in work stoppages (mostly involving jurisdictional issues). In 1953, there were 176 such strikes involving 64,800 workers at a loss of 391,000 man-days of work. The 1952 figures totalled 200 work stoppages, 183,000 workers and 798,000 man-days of idleness. One board member estimates another 10% decline in jurisdictional strikes so far this year.

• **Has no police powers**—Despite the decline in job fights, the joint board is operating at about the same pace. Meeting once a week, the nine-man group handles an average of 20 cases. Although the board has no police powers to enforce its decisions, the unions have generally accepted the results.

The board does not pick its decisions out of the hat. It operates on a body of regulations set up by the AFL executive council and AFL conventions, national agreements between unions, and the joint board's national decisions.

But these rules don't make life easy for board members who, incidentally, serve without pay. Each job dispute must be considered with all the elements involved at the construction site. For instance, the hod carriers might be awarded an assignment of laying pipe in one case, while the work might go to the plumbers in another.

The thin line walked by the board is illustrated in its last national agreement of October, 1950. In a dispute between the AFL's iron workers and boiler makers, the joint board decided:

• The installation of furnace bottoms, defined as that part subject to direct and continuous exposure to fire in the furnace that is air/or water tight, is boilermaker work.

• Installation of the ash hopper (container for ash) that is not subject to direct or continuous exposure to fire in the furnace whether or not air or water tight is in the jurisdiction of the iron workers.

• **19 unions take part**—Dunlop has been the man-in-the-middle of the construction disputes since he helped set up the board back in 1948. Perpetually occupied with teaching, writing and working on other labor matters (he was a member of the President Truman's Wage Stabilization Board), he appears in Washington for the weekly one-day session, usually a Thursday. The board also processes cases in his absence.

All 19 building trades unions take part in the joint board system, making up 171 pairs of potential disputes. This, in itself, presents a formidable area of conflict and with the influx of new materials and construction methods the area is constantly expanding.

JOHN T. DUNLOP—the middleman on the industry-labor team.

• **New pact being promoted**—Growing acceptance of the board's role in settling jurisdictional disputes has been aided by AFL President George Meany's repeated emphasis that these disputes are costly both in reputation and in union funds.

And, in this connection, Meany is promoting a new AFL jurisdictional peace pact outside the building trades that comes up for approval at the AFL national convention next week. This program calls for an umpire to handle such disputes between AFL unions outside the building trades department and disputes between these unions and the AFL's construction affiliates. The joint board has no authority over cases reaching outside the building trades.

The chances are there will be no conflict between the two programs.

Contract simplification

The Department of Labor has simplified the wording of labor standards provisions contained in federal construction contract forms for awards under $2,000. Designed to aid small contractors who do not have enough government business to become familiar with all the regulations, the new form brings together for the first time all pertinent requirements in concise, easy to read language.

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Contraction joints—

When to saw them

Herbert B. Erickson
Asst. Materials Engineer and Airfield Pavement Designer, Omaha District, Corps of Engineers, Omaha, Nebr.

Sawed contraction joints in airfield and highway pavements are becoming increasingly common, because they are economical and efficient.

But the big question is: How soon after the concrete is placed in the forms should the joints be sawed?

This "time for sawing" has been found to be critical. Early sawing reduces the life of the saw blade and may produce ravelled joints, while late sawing can result in poor control of contraction cracking.

Observation of the temperature cycle in thick concrete airfield pavements was used by the Omaha District, Corps of Engineers, as a guide for determining the proper timing of the sawing operation.

The desirability of securing very smooth transverse and longitudinal joints in airfield pavements has become even more important with the advent of higher speeds and the high-pressure tires of modern aircraft, especially jets.

• **The problem**—There is also the ever-present requirements for absolute control of contraction cracking, as well as the difficulty of obtaining vertical, straight and undepressed formed joints. All this has forced rapid progress in both research and the development of successful sawing techniques.

The joint-spacing and timing of joint sawing specified by the Omaha District for sawing contraction joints in thick pavements for military airfields in Nebraska, the Dakotas, Wyoming and Minnesota were first patterned after practices successfully used by others for sawing relatively thin highway pavements. But this proved to be unsatisfactory.

Erratic cracks occurred in the first pavements sawed under these procedures. This indicated a necessity for further study and adjustment in the sawing time with careful consideration of the greater slab thickness and weather conditions.

Initially, the transverse contraction joints were sawed at 50-ft intervals about 17 to 24 hours after placing the concrete in the forms. Intermediate cuts at 25-ft intervals were sawed later, usually between 40 and 100 hours after placing. In general, all contraction joints were sawed to a depth of one-sixth the slack thickness.

It soon became evident, however, that to insure control, the transverse contraction joints must be sawed initially at 25-ft intervals and sawing was scheduled to be accomplished within 20 hours after placement. As a result of this change, the occurrence of uncontrolled contraction cracks became less frequent. However, the number of cracks which occurred required further improvement of the procedure.

• **Temperature studies**—In order to learn more about the thick pavement slabs, the temperatures of the concrete in several slabs were observed hourly from the time of placement until contraction cracks appeared below the saw cuts in most of the joints. It had been observed previously that contraction cracking in concrete placed before noon was more difficult to control than in concrete placed after noon. The temperature studies verified this phenomenon and indicated the reason it occurred.

• **Data shown on charts**—The relationships between time of placing concrete, time of sawing, opening of contraction joints and temperature of air and concrete are shown in the two accompanying illustrations.

The upper chart shows these data for a 20-in. concrete pavement placed at 6:00 pm on Sept. 16 at the Lincoln (Neb.) Air Force Base. The lower chart shows corresponding data for a 20-in. slab placed at 8:00 am of the following day, in a nearby paving lane at the same airfield.

The difference in the time interval between placing and the time at which contraction cracks appeared may be explained by the difference in time required for the concrete to reach maximum temperatures.

It might have been preferable to take the temperature at mid-depth in the 20-in. slab, but suitable thermometers were not available. It is believed, however, that temperatures at mid-depth would have followed a similar cycle.

The temperature of the slab placed in the morning (lower chart) increased rapidly until it reached its peak about 4:00 pm in the afternoon of the first day. The heat of hydration, the heat of the sun, and the high air temperatures accumulated to cause the rapid rise in the temperature of the slab.

The temperature of the slab placed in the evening (upper chart) increased until midnight and then decreased slightly until about 7:00 am the next morning. In this case, the heat of hydration was to some extent offset

by the lower night temperatures. The slab temperature then increased until it reached a maximum at 3:00 pm in the afternoon.

The time of sawing is shown on each chart. In each case, sawing was accomplished before the concrete reached its maximum temperature. Curing of all slabs was accomplished by the use of a membrane-curing compound.

• **First crack observed**—The time at which visible cracks were first observed below the saw cuts was 33 hr for the upper chart, and only 20 hr for the lower one. The elapsed time to maximum temperature was 21 hr for the upper chart, and only about 8 hr for the lower one. It is believed that minute contraction cracks had formed under the saw cuts several hours before they could be observed, probably soon after the concrete reached its maximum temperature and started to cool.

• **Weather, a factor**—Additional temperature observations made later in the season and at other locations showed the dominant influence of weather conditions on the setting time and on the maximum temperature attained by the concrete.

In early November at Ellsworth Air Force Base, Rapid City, S. D., it was 64 hr before the saw could be operated on the slab surface and about 120 hr before the maximum temperature was reached. These observations further confirmed the effect of weather conditions on the setting time of the concrete and on the proper time at which to saw.

• **The answer**—The temperature observations and trial sawing permitted development of a simple criterion for field use in determining the time at which to saw the joints. It was decided that the contraction joints must be cut as soon as the saw could be operated on the slabs without damaging the surface. Excellent control of contraction cracking was obtained after this criterion was adopted.

Saw operators and inspectors expressed concern over the fact that the saw cuts in concrete made under the new criterion showed slight ravelling and displacement of sand in the edge of the saw cut.

The great importance of sawing early to insure control of contraction cracks and the very minor significance of the slight ravelling had to be explained. This slight ravelling of the saw cut is now accepted as a good indication that sawing is being accomplished early enough to insure control of contraction cracking.

• **Late sawing produced cracks**—Uncontrolled cracks (during the initial work when sawing was done late) occurred across the entire pavement lane. After the interval between placing and sawing had been shortened to about 20 hr after placement, a few short uncontrolled cracks started in the saw cut close to the edge of the pavement and crossed the corner of the slab diagonally as shown in an accompanying photo. The uncontrolled cracks occurred at the side of the pavement which was sawed last.

Tensile stresses in the concrete apparently caused the crack to occur suddenly while the joint was being sawed. This type of cracking is believed to occur when sawing is slightly later than optimum. These uncontrolled cracks were eliminated, however, when pavements were sawed as soon as the saw could operate safely on the pavement surface.

Experience obtained during the 1953 construction season proved that contraction cracking can be controlled very effectively by carefully-timed sawing. Excellent progress was made by contractors and field engineering personnel in developing methods of sawing which provided neat, well aligned sawed joints.

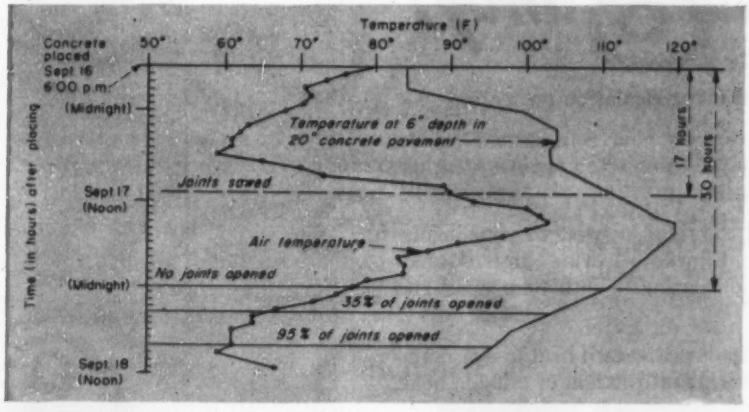
• **Increasing blade life**—The life of saw blades, which had been reduced by early sawing, was prolonged by the generous use of cold water supplied under pressure from a tank truck for lubrication and cooling. Also it is believed that changes in design of the blade were made by manufacturers to adapt the saw to use in partially hardened concrete.

Improvements in the saw blades include increasing the amount of diamond "Bort" in the bonded cutting edge and a change in the design of the bonding material to increase resistance to abrasion of loose sand in the joint during early cutting.

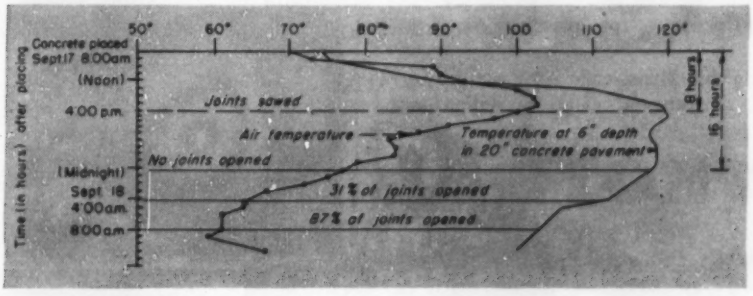
• **Improved saw blades**—Early reports indicate that newly developed wire mesh reinforced resenoid blades (carborundum, silicon carbide) appear to have good prospects for use in green concrete when relatively soft aggregates are used and the depth of each saw pass is limited. The low price of the blade and the fact that best blade life is obtained by early sawing should provide a double benefit by encouraging early sawing and thereby insuring control of contraction cracking.

The wider blade cuts a ¼-in. slot which should make the joint easier to

(Continued on page 32)



CONCRETE PLACED in late afternoon reached its maximum temperature 21 hours later. First contraction cracks beneath the saw cuts become visible in about 33 hours.



BY COMPARISON, the concrete that was placed in the early morning reached its maximum temperature in 8 hours, and the first contraction joints became visible in about 20 hours after placement.

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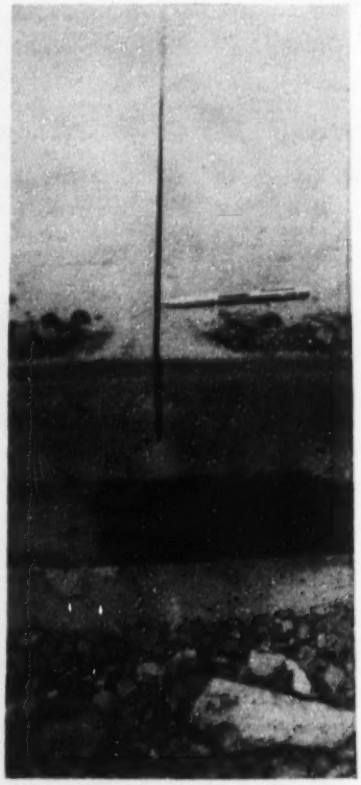
clean and inspect. This should also be helpful in getting better bond for the sealing compound. A wider joint is also easier to fill with sealing material. The greater width of sealing material in the joint is believed to decrease any tendency for the joint seal to break bond with the concrete or crack when it is stretched as the concrete contracts in cold weather.

Certain new designs of concrete saws provide the following improvements: Floating suspension to reduce the possibility of blade binding; better direction of the water spray to increase lubrication and cooling of the saw blade; a rear cutting guide to assist the operator in maintaining alignment of the saw cut; better balance of the machine for maneuvering, and reduced sway by a new wheel design.

The rapid improvement of techniques for sawing joints should insure more extensive use of this type of joint in future concrete pavements.

The most important problem remaining to be overcome is the difficulty of cleaning and filling narrow joints with sealing compound. A solution for this problem is being sought by the Corps of Engineers. A suitable method for cleaning and filling the sawed joints will undoubtedly be developed in the near future.



WHAT HAPPENS IN LATE SAWING—uncontrolled fine hair cracks occur suddenly, near the pavement edge, while the saw cut is being completed.

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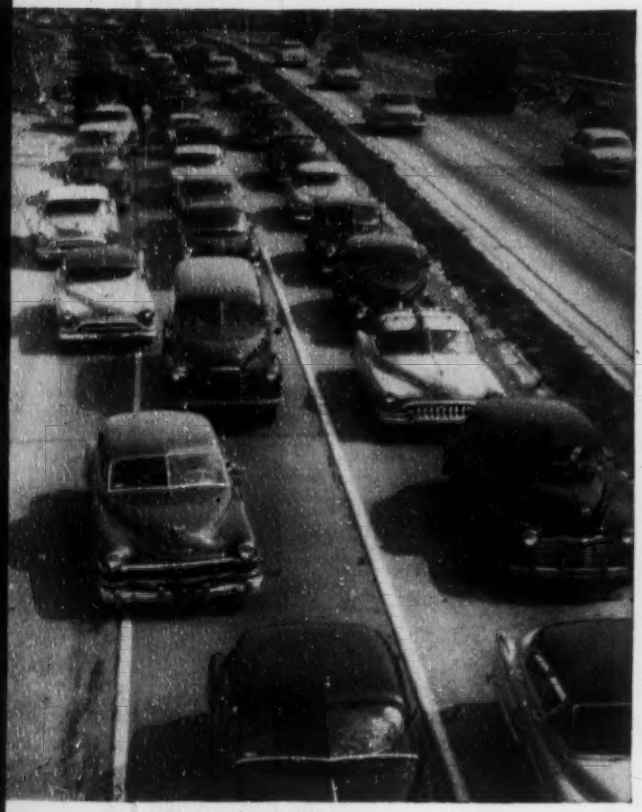
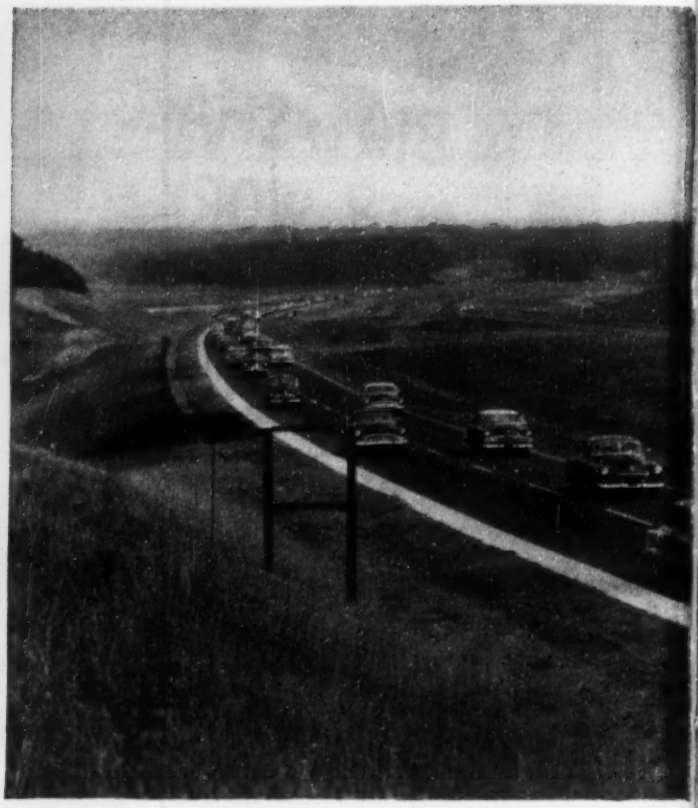




New Jersey eases some traffic jams with

Recently opened for most of its length, the 165-mile, $285-million Garden State Parkway has already relieved a lot of traffic jams. Until now, there has existed no through route from the populous northern section of the state to the booming recreational areas in the southeast.

Unlike the now-famous New Jersey Turnpike—which funnels traffic through the state between New York and Washington, well away from the busy Jersey beaches—the parkway is truly an intrastate facility. Along its northern third, from Paramus to the Raritan River, one-third of all New Jerseyans live within three miles of the roadway. To the south, the new highway serves the coastal resort from Monmouth Park Race Track and Asbury Park south to Atlantic City and Cape May—a hundred-mile stretch that has never had roads adequate to handle the huge seasonal influx of pleasure seekers.

• **Trims travel time**—The section of the parkway recently opened extends from a point west of Newark all the way down to Cape May. Normal travel time from the northern, metropolitan sections to the shore points has been reduced a third.

Passenger vehicles from the north used to travel by way of city streets through intersections which, at peak flow, never cleared between traffic light changes. Between Paterson and Asbury Park, the former best route was interrupted by no less than 322 intersections, 110 of these controlled by traffic signals. Average time for the 62.3-mile trip on a spring weekday was two hours, but on a summer Saturday it frequently would take more than four.

Also, the thin strip along the Atlantic coast has increased in population by about 50% between 1940 and 1950, and is presumably growing at an even faster rate today. Routes 9, 34 and 35, formerly the main roads to the shore, were clogged all through the summer and every weekend of the year. Traffic studies used in planning for the parkway showed that the flow over the old Edison Bridge at the Raritan River and on U. S. 9 at Atlantic City had increased about 50% in the four years from 1947 to 1951, and estimates are that traffic in these sections by 1960 will be more than double the 1947 level.

• **Need apparent**—The need for the Garden State Parkway had been clear for some time. Enabling legislation was passed in 1945, and work was started then by the New Jersey State Highway Department—but lack of funds permitted construction of only 22 miles of the dual facility in six years. At this rate it would have taken 45 years to complete the road.

But as traffic jams got unbelievably worse and traffic surveys bolstered the predictions of even more horrible tie-ups, the state legislature in 1952 created the New Jersey Highway Authority (ENR Sept. 18, 1952 p. 28) to construct the parkway as a self-liquidating toll road.

By the end of 1952 the new authority had resolved most of the basic problems concerning design, alignment and financing of the entire projected facility. These problems had been handled on the basis of traffic studies made by the Highway Department, the U. S. Bureau of Public

Every summer weekend, New Jersey's sun-drenched Atlantic shore beaches and boardwalks entice thousands of pleasure-bound motorists. For years these travellers got ensnarled in traffic jammed with thousands of vehicles creeping along totally inadequate highways. But with the opening of the new Garden State Parkway, a divided, four-lane, limited access superhighway, the main body of this traffic is carried smoothly to all New Jersey shore points.

a long parkway

Roads, consulting engineers for the project, Parsons, Brinkerhoff, Hall & Macdonald, and Coverdale and Colpitts, consulting engineers of New York.

By the beginning of 1953 right-of-way acquisition was proceeding on schedule and construction was under way on two new sections abutting part of the work the Highway Department had finished in 1951. By the end of 1953 contracts had been awarded for almost all of the parkway construction, and the beginning of 1954 saw the parkway over 40% complete.

By pushing the whole project at a fast rate, with paving in some places going on 20 hours a day, approximately 140 miles of the 165-mile facility have been opened to date.

• **Part toll and part free**—Like the parkways in Westchester County, New York, and in Connecticut, barrier-type gates, built across the parkway at intervals along its length, will be used to collect most of the tolls. At only 7 of the 226 entrance and exit ramps will tolls be collected. All

(*Continued on page 36*)

NEW JERSEY'S GARDEN STATE PARKWAY is complete on the 140-mile stretch from west of Newark down to Wildwood, just north of Cape May.

. . . Parkway aids traffic

other entrances and exits will be free. Also, two stretches of the parkway in the northern metropolitan region are required by law to be free of tolls.

As a consequence, many local movements can be made over the parkway without payment of tolls.

A charge of 25¢ will be made at the 9 barrier type gates and at three entrance ramps. Only 10¢ will be charged at the remaining four entrance stations. When the parkway is in service from Paramus to Cape May the total passenger-car toll will be $2.25, or 1.4¢ per mile for the 165-mile journey.

• **Access**—Of the 81 interchanges along the parkway, only 23 allow entrance and exit for both northbound and southbound movements. The remainder of the interchanges are designed to permit only those combinations of entrance and exit which traffic studies have shown to be predominately characteristic or necessary in the traffic flows through and along the intersecting route.

Use of the parkway is limited by law to passenger vehicles, taxicabs and buses on its northern end; but below Lakewood, trucks may use the facility. Traffic counts have shown that this section of the parkway will be able to handle trucks as well as passenger vehicles without reaching capacity flow.

Design of the parkway allows the addition of third lanes to the two-lane strips in the northern sections. It is the general belief of persons acquainted with the area and the parkway that traffic counts will establish feasibility of building the extra pavements in just a few years.

• Built-in safety

A wide margin of safety is inherent in the design, in that a design speed of 75 mph was specified, and a maximum speed limit of 60 mph is imposed. All but a few curves have a 10,000-ft radius.

Deliberately laid out to take advantage of the contours of the land and to reduce changes in the natural formations, the lanes of the parkway curve gently throughout much of its length. Long straightaways have been avoided to reduce the possibility of drivers becoming "accelerated" or "hypnotized."

One of the most striking aspects in the southern section is the wide median strip, sometimes 600 ft wide in the flat pine woodlands, which frequently places one two-lane pavement out of sight of the other.

Right-of-way was comparatively inexpensive in this part of the state, and wide median strips were adopted for four reasons: 1) to allow future construction of a two-lane reversible flow pavement in the median, 2) to make full use of the roadways and the 15-ft cleared strip on either side of them as a firebreak effective in any kind of wind, 3) to prevent any possible headlight glare from oncoming cars over the flat country, and 4) to provide for construction of all police stations, restaurants and service stations south of the Raritan River within the strip between roadways.

In grading operations, as much of the natural landscaping as was practicable was left intact to preserve the beauty of the route and to minimize headlight glare by leaving the original trees and bushes as a screen in the median strip.

Wherever possible, right-of-way was acquired to the tops of hills and to

(*Continued on page 38*)

HYDRAULIC SAND FILL on either side of the steel-girder Mullica River

Garden State Parkway: Facts and Figures

Length: 165 miles

Cost: $285 million, exclusive of the 22 miles built by the state highway department in 1951

Design speed: 75 mph, with a 60 mph speed limit

Revenue expectation 1955: $12,000,000 (estimated count of 52,833,000 vehicles including 30,583,000 toll rides)

Structures: over 300 over-and underpasses; 114 entrance ramps, 112 exit ramps; 81 interchanges; 9 cross-roadway toll stations, 8 entrance ramp toll stations

Paving: 146 miles of bituminous concrete; 19 miles of portland-cement concrete.

Intersections at grade: None except in a 4-mi section north of Cape May

Median strip width: from 4 ft to 600 ft; average median width 100 ft.

Radius horizontal curves: 10,000 ft, with exceptions of 6,000 ft in vicinity of Matawan Road and Earle Naval Ammunition Depot

Grades: not over 3% throughout, except for a few instances of slightly higher grade in the hilly terrain of northern Monmouth County

Highway links: 25 major cross-state routes tie in with the Parkway

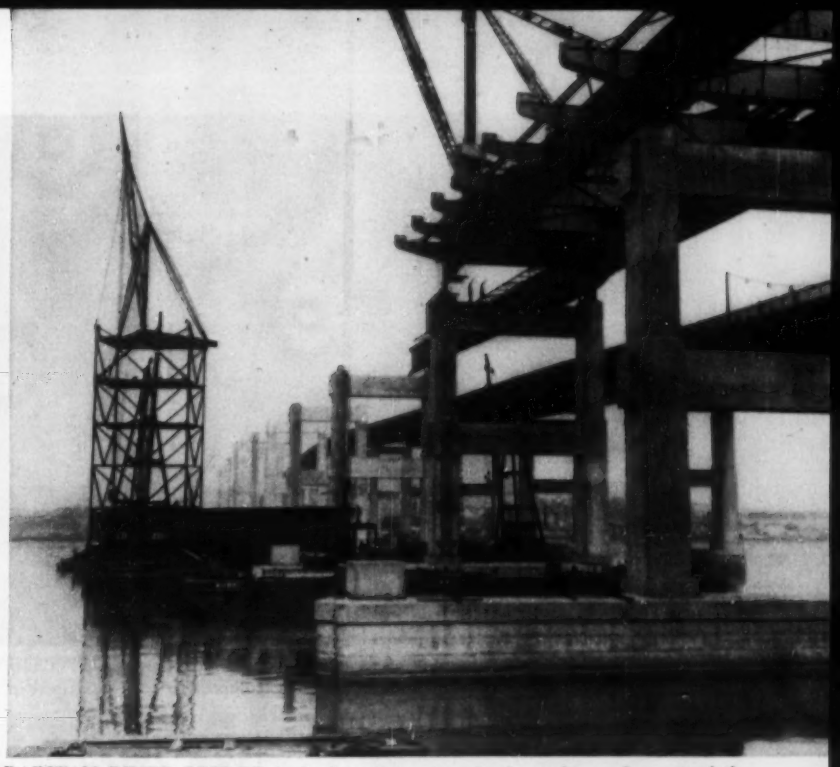
Dwellings displaced: 1,250 dwellings had to be removed or destroyed

Number consulting and design engineers: 18 firms employed for the work

Number contractors: 56 prime contractors signed with the New Jersey Highway Authority. Innumerable sub-contractors

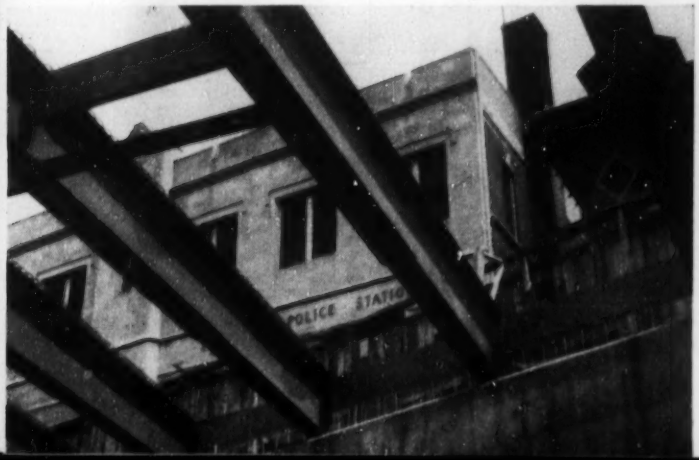
Soil conditions: subgrade varies from various morainal deposits in the north to sands of the Coastal plain in the south. At no place was bedrock—primarily a red shale type—readily available.

bridge was pumped from the river bed onto a 4-mi stretch across the salt flats.



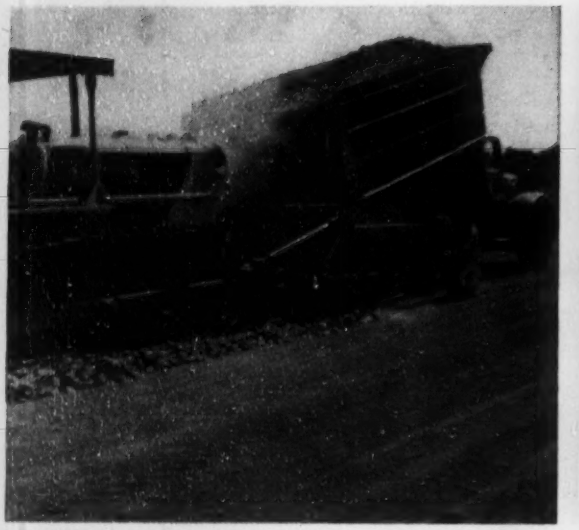
RARITAN RIVER BRIDGE is the largest structure in the parkway. Longest of the 29 spans is 240 ft and provides 135-ft clearance. Steel piles on bed rock support piers.

CONCRETE FLUME carries Elizabeth River under the parkway for over a half mile.



PARKWAY was built below street level through Irvington.

IN THE PINE COUNTRY of South Jersey, where land costs were low, the opposing lanes are widely separated. This will permit the addition of reversible-flow lanes in the future or the addition of service areas or restaurants between the opposing lanes.



SPREADER distributes 13 tons of stone in 45 sec. Previously laid screenings are then "floated up" by vibratory compactors.

NIGHT PAVING with floodlights placed at rear and sides of paver helped in meeting parkway completion dates.

CHAIN dragged by two bulldozers smooths rough spots on embankment.

. . . New Jersey opens parkway

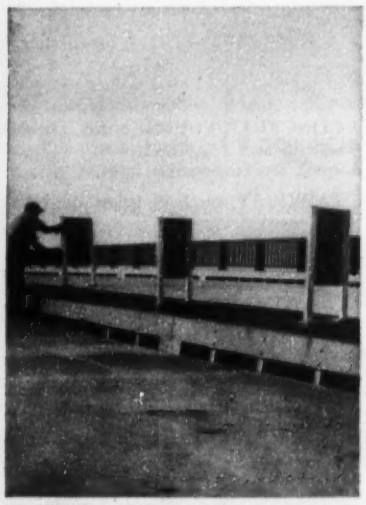
the far side of streams to prevent commercial or residential exploitation of natural roadside features.

• **Bridges**—Largest bridge on the parkway is the steel girder crossing of the Raritan River. This $11-million 4,400-ft structure parallels the present Edison Bridge. The median island on the new bridge will feature a row of opaque plastic panels set up to cut glare from oncoming vehicle headlights.

Two major projects on the parkway still await financing: one is a causeway bridge across Great Egg Harbor near Ocean City; and the other is the connection of the Garden State Parkway with the New York Thruway —a 10-mile stretch of road to run north from Paramus. The present bridge over Great Egg Harbor, a two-lane private toll bridge, will be used by the parkway until construction of the $20-million crossing can be carried out.

The parkway is being built by the New Jersey Highway Authority with Ransford J. Abbott, executive director, and Harold W. Giffin, chief engineer. Parsons, Brinkerhoff, Hall & Macdonald, New York, are general consulting engineers to the authority for the project.

DEEPEST CUT in the whole parkway was an 80-ft deep section out of a hill just south of Route 33. As soon as cut was smoothed out mulch and grass seed were spread.



PLASTIC PANELS at the crown of the Raritan R. Bridge cut headlight glare.

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3. **COBI PILES are cast in forms that are water-tight. Every seam and splice is continuously welded.**
4. **COBI PILES maintain the original shape and form of the shells. They are driven as an integral part of the mandrel.**
5. **COBI PILES are largest where the need is greatest, down below.**
6. **COBI PILES show less settlement under heavy loads.**
7. **COBI PILES are anchored in the ground, they resist uplift best.**

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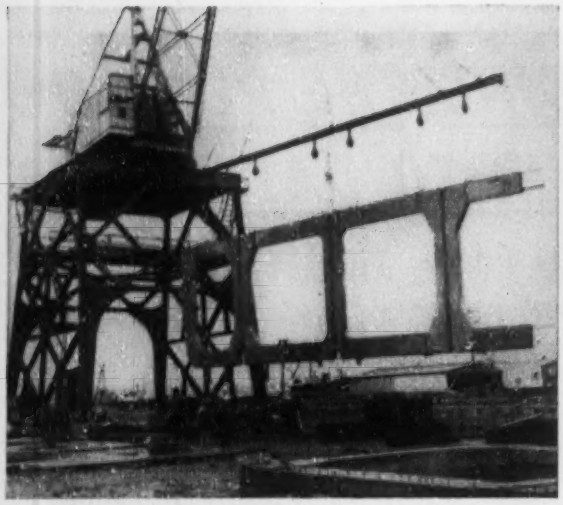
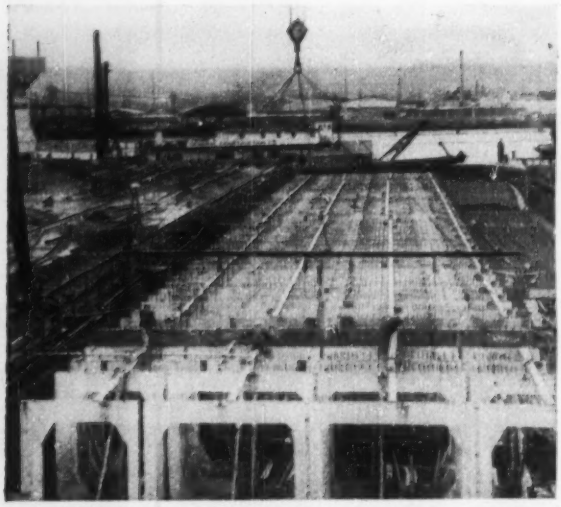


CONCRETE TRUSSES were precast in two units for the pontoon section of a 4,000-ton-capacity floating drydock.



PRECAST UNITS were positioned with a gantry. Bulkheads later were formed through slots in truss verticals.

Framing precast for floating drydock

Precast concrete Vierendeel trusses brace the decks and wing walls of a 400-ft-long floating drydock being built for the Navy at Seattle, Wash. Bulkheads, walls and decks were cast in place in long, continuous pours to form an integrated, watertight structure. The concrete was made with fly-ash.

With a lifting capacity of 4,000 tons, the new drydock will be the largest of its type. Floating concrete drydocks built previously had a capacity up to 2,800 tons.

The record-size dock consists of a 96x400-ft by 18½-ft deep, rectangular pontoon section and 14-ft wide hollow wing walls, which extend 35 ft above the top (operating) deck of the pontoon. The structure contains 5,400 cu yd of concrete and 2,000 tons of steel. It weighs 12,800 tons. Walls and bottom slab are 5¾ in. thick, while the operating deck is 5½ in. thick, with 1-in. coverage over the reinforcing where exposure to sea water is considered likely.

• **Interior subdivided** – Longitudinal and transverse watertight bulkheads divide the pontoon section into 24 ballast tanks. Two decks 17½ ft apart and transverse bulkheads also divide the 14-ft-wide by 350-ft-long wing walls into watertight compartments.

The pontoon section is braced by 58 transverse precast Vierendeel trusses spaced 6 ft on centers. These trusses are part of U-shape bents, the vertical legs of which are similar trusses in the wing walls.

The walls, though only 5¾ in. thick, are reinforced with a vertical mat of No. 11 bars spaced 2 ft c-c and No. 6 and No. 8 horizontal bars on 5-in. centers.

The drydock was built in a waterfront graving dock that has steel sheetpile walls and gate and a concrete floor. The working area was kept dry by four electric pumps.

Vierendeel trusses for the pontoon section were precast on the site in two units, the larger accounting for two-thirds of the 96-ft span and 40-ton weight.

• **Bulkheads cast in place**—To permit continuous placing of concrete for the longitudinal bulkheads, a vertical strip was omitted for the full depth of three of the verticals in each truss. Reinforcing bars extended across the gap to hold the panels together, and when the bulkheads were concreted, the steel served to integrate the precast and cast-in-place portions of the structure. These bars also were useful as chairbar supports for the bulkhead reinforcing.

Only 100 tons of bars in the entire structure had to be threaded through the bulkhead slots. The rest of the steel was regular mat patterns.

The precast units were positioned with a gantry as soon as reinforcing steel had been placed in the dock bottom. A crawler crane helped out when units had to be set beyond the effective reach of the gantry.

• **One pour for 96 x 400-ft slab**—With the trusses in place, 1,000 cu yd of concrete were placed in the dock bottom in a continuous 62-hour pour. Delivered from a mixing plant on the site in 4-cu yd buckets by a 40-ton gantry crane, and in 2-cu yd buckets by a flat-bed truck for placement by a crawler crane, the concrete was tremied between the trusses. (Specifications precluded use of mixed-in-transit concrete.) The concrete was vibrated internally in the 1½-in. spaces between the steel with a 1⅜-in. vibrator manufactured locally for the purpose and powered by a 2½-hp electric motor.

• **Fly-ash aids contractor**—Original specifications called for 7½ bags of cement per cubic yard of concrete. They also required monolithic pours between decks with no vertical or horizontal construction joints. The contractor, anticipating a slow rate of placement in the vertical walls, requested modification of the mix to include fly-ash. This in combination with Type II portland cement (low heat-of-hydration, high-sulfate-resistance type) would retard the initial set to a limit of two hours. The request was granted, allowing 1½ sacks of cement per cubic yard, or 20% by weight of the cement content, to be replaced by fly-ash.

The additional working time thus gained cut defects down. The fly-ash also offered further advantages: Concrete weight was reduced 5 lb per cu ft. With an air-entraining agent added, plasticity of the mix was improved, aiding significantly placement of concrete in the heavily reinforced slabs. The concrete is expected to be more watertight. And shrinkage is presumed to be less, resistance to sea water and sulfates higher and ultimate strength greater.

Proper control of the concrete mix with fly-ash required that the fly-ash have certain, consistent properties. Several fly-ashes were tried on the job,

END SECTIONS of trusses, beyond the effective reach of the gantry, were placed with two cranes.

CONCRETING of bottom slab of drydock was accomplished with a tremie in the 6-ft spaces between trusses.

but only the material from one plant proved satisfactory.

While specifications called for a 4,000 psi concrete in 28 days, tests indicated a strength of 4,500 psi, increasing to an average of nearly 7,000 psi in 60 days. Ultimate strength after a year is expected to reach 8,000 to 10,000 psi.

• **Precast units integrated**—After the bottom slab had been allowed to set about one hour, a continuous concrete fillet was placed at the bottom of every precast truss, extending up 4 in. Studs were embedded in the truss bottom chords with cartridge-powered tools to anchor the fillet forms. A wood plate along each form at the toe minimized sagging of the concrete.

To make certain that the fillet concrete would be monolithic with the slab and to effect a good construction joint with the concrete trusses, concrete was placed through a 2-in. slot in a secondary form atop and extending the length of the fillet form, yielding a 2 or 3-ft head—sufficient, with vibration, to force the mix under the bottom chords. After the forms were stripped, the 2-in. wide concrete riser was removed.

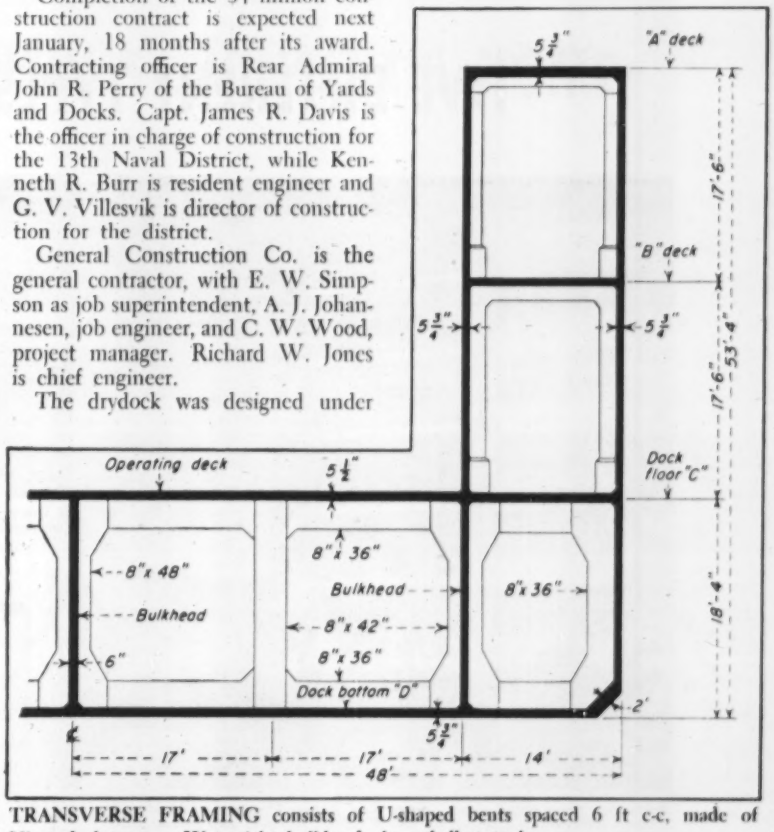
Walls were placed to operating-deck level in a single 55-hour pour. Then, the operating deck was concreted and the wall trusses positioned. Finally, the walls were completed to the full height in two lifts, and wall decks and bulkheads concreted. To meet tide requirements, the top lift was not placed until the dock was floated.

• **Equipped to travel**—Capable of making ocean trips, the drydock will be equipped with its own power system. Water will be pumped in and out of the ballast tanks with twelve 12-in. pumps and twelve 8-in. pumps having capacities of 3,250 gpm and 1,400 gpm, respectively, against a head of 29 ft. Submerging and lifting may be completed in 30 min. The dock will be further equipped with its own portal cranes, boilers, ventilating systems and quarters for personnel.

Completion of the $4 million construction contract is expected next January, 18 months after its award. Contracting officer is Rear Admiral John R. Perry of the Bureau of Yards and Docks. Capt. James R. Davis is the officer in charge of construction for the 13th Naval District, while Kenneth R. Burr is resident engineer and G. V. Villesvik is director of construction for the district.

General Construction Co. is the general contractor, with E. W. Simpson as job superintendent, A. J. Johannesen, job engineer, and C. W. Wood, project manager. Richard W. Jones is chief engineer.

The drydock was designed under the bureau's supervision by DiStasio and Van Buren, consulting engineers, New York City. Previous experience of the principals of this firm fitted them for this unusual project. During World War I, while with Fougner Concrete Shipbuilding Co., Joseph DiStasio was the designing engineer for the Polias, a concrete steamship, and numerous concrete barges.



TRANSVERSE FRAMING consists of U-shaped bents spaced 6 ft c-c, made of Vierendeel trusses. Watertight bulkheads form ballast tanks.

Second floor cafeteria interior; attractive combination of Truscon Intermediate Projected Steel Windows with Truscon Picture Windows.

FIVE DIFFERENT TYPES OF TRUSCON STEEL

Interesting corner detail shows Truscon Steel Picture Windows combined with Truscon Intermediate Combination Steel Windows. Adjacent wall sections fitted with Truscon Steel Double-Hung Windows.

St. Vincent's Home, Omaha, Nebr. Steele, Sandham and Steele, architects. Parsons Construction Co., contractors.

Double-Hung Steel Window: wide range of styles, sizes. Stainless steel weatherstripped.

Intermediate Projected Window: wide variety of sizes, designs; projected and hinged ventilators.

Intermediate Combination Window: Incorporates side-hinged casement and projected ventilator in one design.

Main entrance elevation of St. Vincent's Home. Truscon Intermediate Projected Windows combine with Truscon Picture Windows in second floor facade; Truscon Intermediate Steel Casements on ground floor.

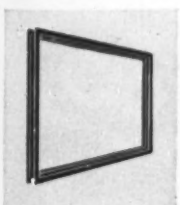
WINDOWS SERVE NEW ST. VINCENT'S HOME

They've used a *variety* of Truscon Steel Windows to capture sun and sky for new St. Vincent's Home in Omaha.

These striking applications demonstrate how effectively you can achieve beautiful and functional architectural effects with your choice of Truscon units. How you can design for the daylighting you want. How Truscon windows can be adapted to your original ideas. How you can provide effective weather protection in all climates.

No one makes a greater variety of metal windows than Truscon. It's a good idea to keep current details of the big Truscon line handy to your desk or board. Your personal copy of the complete Truscon Window Catalog will do it. And, it may help spark an interesting idea. Simply ask any Truscon office, or write "window headquarters" in Youngstown. Details are handy in Sweet's File, too.

Intermediate Casement: specially designed one-piece sections. Solid bronze hardware.



Picture Window: for use singly or in combination with other windows. 6' 0" maximum width.

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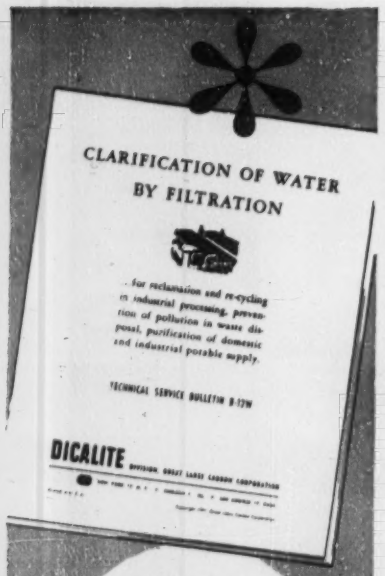

This FREE Bulletin gives valuable data on water filtration...

Many problems in the reclamation or recycling of water in industrial processing, in the prevention of pollution in waste disposal and in the purification of potable supply are answered in DICALITE'S BULLETIN B-12-W—"Clarification of Water by Filtration."

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GREAT LAKES CARBON CORPORATION
Dept. E, 614 S. Flower Street
Los Angeles 17, California

United Press photo

Chicago's new underground garage

Two-level structure parks 2,359 cars; has four entrances—ceiling signal light system expedites parking and exit

Opening of the Chicago Park District's $8.3 million underground parking garage—covering a three-block area extending from Randolph to Monroe Streets beneath Michigan Avenue and Grant Park—marks a significant milestone in efforts to overcome downtown parking problems.

The 1,200 ft long, 375-ft wide underground garage has two floors below ground and a small mezzanine above ground. It will park a total of 2,359 cars, including 200 on the mezzanine.

Four ramps in Michigan Ave. lead from street level. Other ramps inside the garage lead on down to the second level (El. −5.75), or up to the mezzanine. Roof level (El. +12) is 4 ft below the original ground level of the park. This permits placement of a 4-ft earth fill over the roof of the garage, and restoration of Grant Park to its original status.

Southbound traffic enters and leaves the garage by ramps located in a central traffic lane of Michigan Ave. Northbound traffic enters and leaves by ramps located just inside the original east curb. Michigan Avenue traffic however, is not expected to be hampered by these four ramp entrances to the garage. The three-block length of Michigan Ave. from Randolph south to Monroe was widened from its original 8-lane width to 10-lanes. This leaves four lanes each way for traffic, plus two lanes containing the ramps.

Three sets of escalators and stairs located in the sidewalk area on the west side of Michigan Ave., lead from sidewalk level to the first and second parking levels. Escalators are reversible but normally they will ascend.

Grant Park garage is within two short blocks of State Street and its northern terminus is adjacent to the Randolph Street station of the Illinois Central Electric Railroad. Favored by this excellent location for shopper and commuter, a schedule of charges was set to favor the short-time parker.

This is shown in the rates which are (for self parker): 40¢ for the first hour; 15¢ for each additional hour up to 9 hr; 10¢ for the tenth hour; and 5c for each additional hour up to 24 hr. This adds up to $2.40 for a 24-hr period. For a 25¢ additional fee, an attendant will park a motorist's car and deliver it at the reception room or the main concourse of the first floor level.

• **Parking made easy**—Procedures for handling cars inside the garage, either by the self-parker or attendant-parker, have been worked out for maximum

(*Continued on page 46*)

Our Cities and Industries are **THIRSTY FOR WATER**

.....so is Agriculture

As more and more people move into private homes, water consumption climbs sharply. Without exception new production techniques in industry result in increased need for water . . . on our farms and ranches, the rapid growth of irrigated acreage means that more water is needed so that our food production can keep pace with population growth. America is truly thirsty!

Layne—the world's largest developers of ground water resources—knows most about these thirsts and how to satisfy them.

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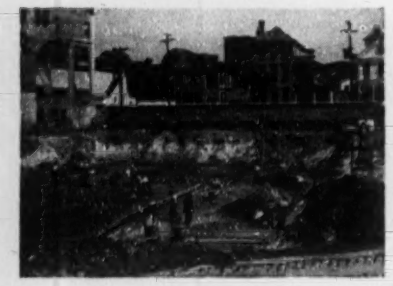

HOW WELLPOINTS HELPED
ELIMINATE PILES

THOUGH CONDITIONS of the job would ordinarily have necessitated use of piles, a far more economical plan was devised. This was to construct the basement in the manner of a "ship's hull," and it called for deep digging in a high-water-table area (without disturbing substrata support of adjacent 14-story hotel).

• Thus, the success of the plan depended on sure control of the ground water—no simple matter in the complex soil mixture of mud, sand, shells and old fill. A Griffin Wellpoint system around the 800-ft basement perimeter solved the problem perfectly, as 200 carefully placed points pulled water below the deepest excavation and held it with firm grip until the structure had sufficient weight to prevent flotation.

• When dependability counts, you can always count on Griffin.

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efficiency, and minimum confusion. The main feature is a system of ceiling mounted colored lights that show the motorist where to park.

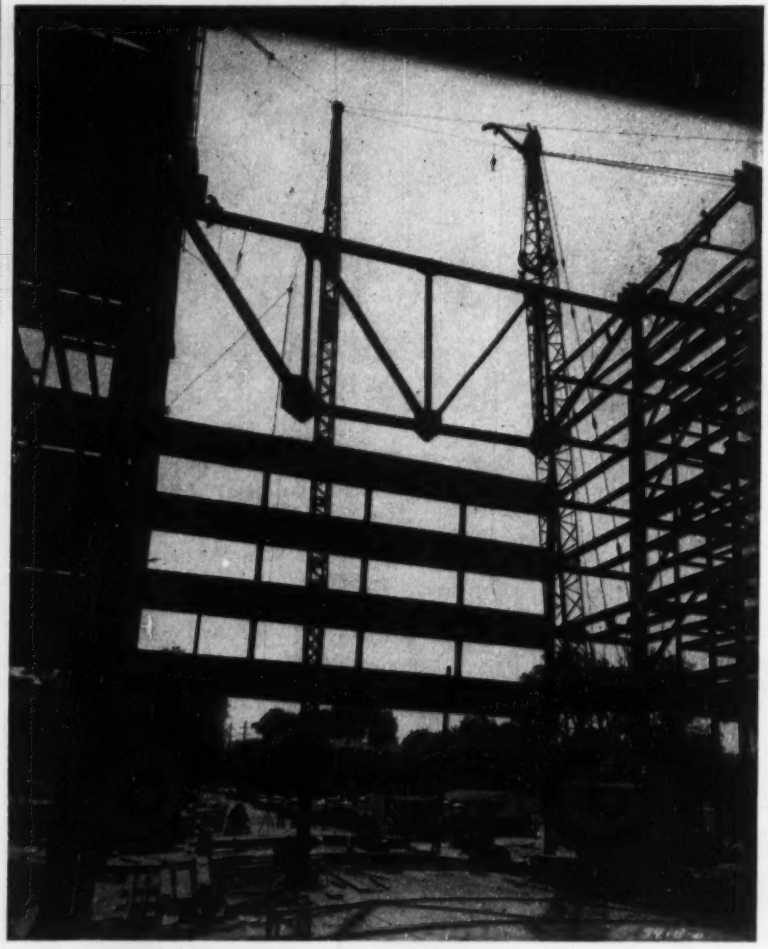
A self-parking motorist enters the main concourse at the first-floor or intermediate level, by means of one of two in-ramps. At that point he gets a time check and has a choice of 10 parking lanes—six lead to self-parking areas on the intermediate and lower levels. The remaining four lanes lead to the mezzanine area, which is for attendant parking only, and to that portion of the intermediate level that also has been set aside for attendant service.

Having selected the lane of his choice, the motorist follows a designated color of ceiling lights to a parking area. At the entrance of each parking area, a green light signals there is parking space available; a red light warns that the area is filled.

After parking his car—he can lock it if he wishes—the motorist walks to one of three escalators that will carry him to the street.

When the self-parker returns for his car, he descends to one of three pay

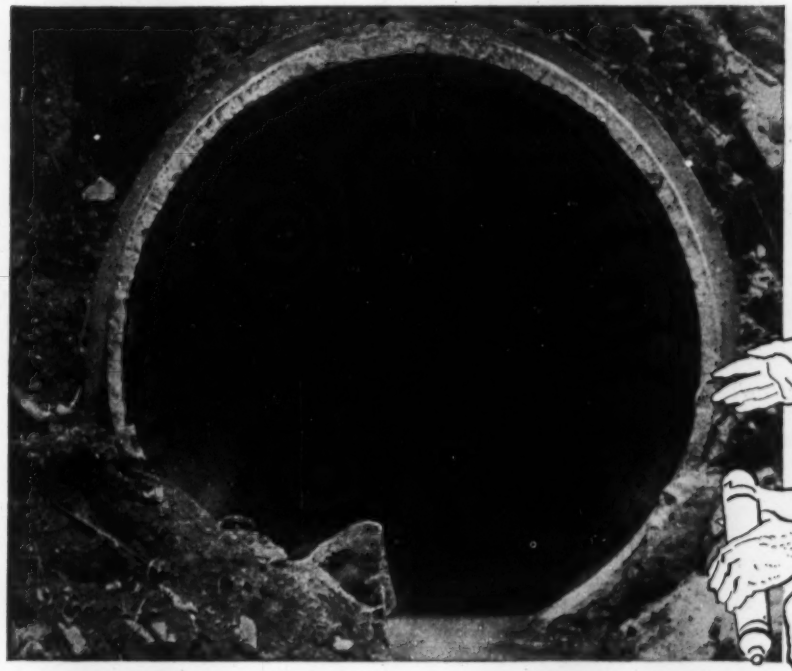
(*Continued on page 48*)



Building bridges Sacramento street

A 27-ft deep Pratt truss went into place late in July to bridge California's new Department of Employment Building across Sacramento's 8th St. The two-block long building will have a 69-ft wide and 25 ft opening permitting 8th St. to pass under it. Third to seventh floors will be hung from the 73-ft long truss. A similar truss was installed at an adjacent interior column. Girders, 6½ ft deep, span the street at the exterior column line to fit the window module and continuous fenestration is employed.

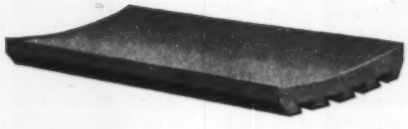
The structure includes almost 500,000 sq ft of floor space. It was designed by the California Division of Architecture under the direction of State Architect Ansom Boyd. Contract for the 3,200 ton steel frame is held by Bethlehem Pacific Coast Steel Corp.



Vitrified Clay Liner Plates give permanent protection against corrosion to concrete discharge lines leading from an Alabama paper mill. Chlorine used to bleach wood pulp forms hydrochloric acid, giving the effluent a pH of 2.5 to 3.0. Clay-lined pipe replaces a severely corroded line that failed despite a "protective" coating.

VITRIFIED CLAY LINER PLATES

protect concrete pipe from corrosion



Whether it's the acid waste of an industrial process . . . or the acid that forms from ordinary sewage . . . Vitrified Clay is *completely unaffected.* That's why engineers specify Clay Pipe for lines that must give permanent, corrosion-free service. Behind this overwhelming preference for Vitrified Clay lies the fact that it can't rust, corrode, flake off, or soften regardless of the chemical activity of sewage liquids and gases. That's why Vitrified Clay Pipe is *guaranteed for 50 years.* It never wears out!

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DIXIE CUP COMPANY, Easton, Pa.

stations on each level, surrenders his time stub and pays the parking fee. Then he walks to his parked car, and drives out, guided by a ribbon of colored ceiling lights.

The ramps and upper escalators, will be heated by steam coils beneath them, to melt snow and ice.

Plenty of fresh air throughout the garage is insured by 28 exhaust tube-axial fans ranging from 20 to 30 hp. Together, they can move 1,766,400 cu ft of air per minute to provide 15 complete air changes per minute.

• **Pays to work fast**—The contractor established an enviable speed of construction that benefited both himself and the Park District. The garage was built in two stages. Stage I included that portion beneath Michigan Ave. Stage II was the remainder.

Terms of the contract called for a $500 per day bonus for each day Stage I was finished ahead of schedule, and also $500 per day for each day the garage was opened for business ahead of schedule.

Stage I was finished, and Michigan Ave. restored to normal traffic, 86 days ahead of schedule. This meant $46,000 bonus. Moreover, the garage was opened for business 80 days ahead of schedule. This meant an additional $40,000 bonus for the contractor.

This $86,000 bonus, however, wasn't the real saving to the contractor since obviously, he spent considerable funds to speed the job and keep it on a fast tempo. His real savings accrued from finishing the job nearly 3 months ahead of schedule.

For the Park District net revenues from operation of the garage for 80 days should in large measure offset, if not exceed, the cost of the bonuses paid to the contractor.

Some of the construction highlights include: Placement of concrete in Stage I by pumping it . . . placement of concrete in Stage II construction by a traveling conveyor system . . . major quantities include 65,000 cu yd of concrete, 9,000,000 lbs of reinforcing steel, and 330,000 cu yd of excavation.

Transit mix concrete was used throughout, with concreting done mostly at night to avoid traffic delays and to insure a dependable supply of concrete . . . best week's production of concrete was 2,600 cu yd in place . . . average concrete production for the entire job was 1,000 cu yd per week . . . floor and roof are flat-slab, with drop panels, on 2-ft dia columns spaced 29x29 ft.

The Grant Park underground garage will be owned and operated by the Chicago Park District. George T. Donoghue is general superintendent, and Robert A. Black, chief engineer.

It was designed by Ralph H. Burke, Inc., Chicago consulting engineers, who also furnished field engineering and inspection on construction. John Simpson is engineer of construction, Robert Comfort, resident engineer, and J. P. Gallagher, chief field engineer. Vic Hofer is in over-all charge for the consulting engineers.

John Griffiths & Son Construction Company, Chicago, is the general contractor on the $8.3 million project. Fred W. Winter is construction superintendent.

Boston extension route set, several bridges required

John A. Volpe, Massachusetts Public Works Commissioner, has announced the route that has been tentatively set for a 3.8-mile, $20-million extension of the Boston Expressway from South Boston to Dorchester, Mass.

Beginning at the terminus of the Central Artery—now under construction—the highway will be double-barreled with three 13-ft traffic lanes and a 10-ft breakdown lane in each direction. Separation strips will be six to 12 ft wide.

Four ramps are to be built for local connections, and several bridges will be required.

It is planned that the extension ultimately will connect with Boston's circumvential Route 128, and this, with the completion of the present construction through the heart of Boston will provide a high-speed south to north route via the Mystic River Bridge and also a route from Boston to the suburban areas west of the central city.

Municipal briefs . . .

• **Plans for Seaway traffic**—A special committee has been recommended for planning the financing of Milwaukee, Wis., harbor improvements, in anticipation of large expenditures that will be required in expanding municipal harbor facilities.

• **Handling crowds is an old story**—Civil defense workers in New York City have the benefit of the combined experiences of Gimbel's and Macy's department stores as well as those officials of the Empire State Building, and of the Chrysler and RCA buildings, during conferences dealing with the best ways of moving crowds, preventing panic and protecting lives. The conferences, which have been held for the past week, will continue through this week.

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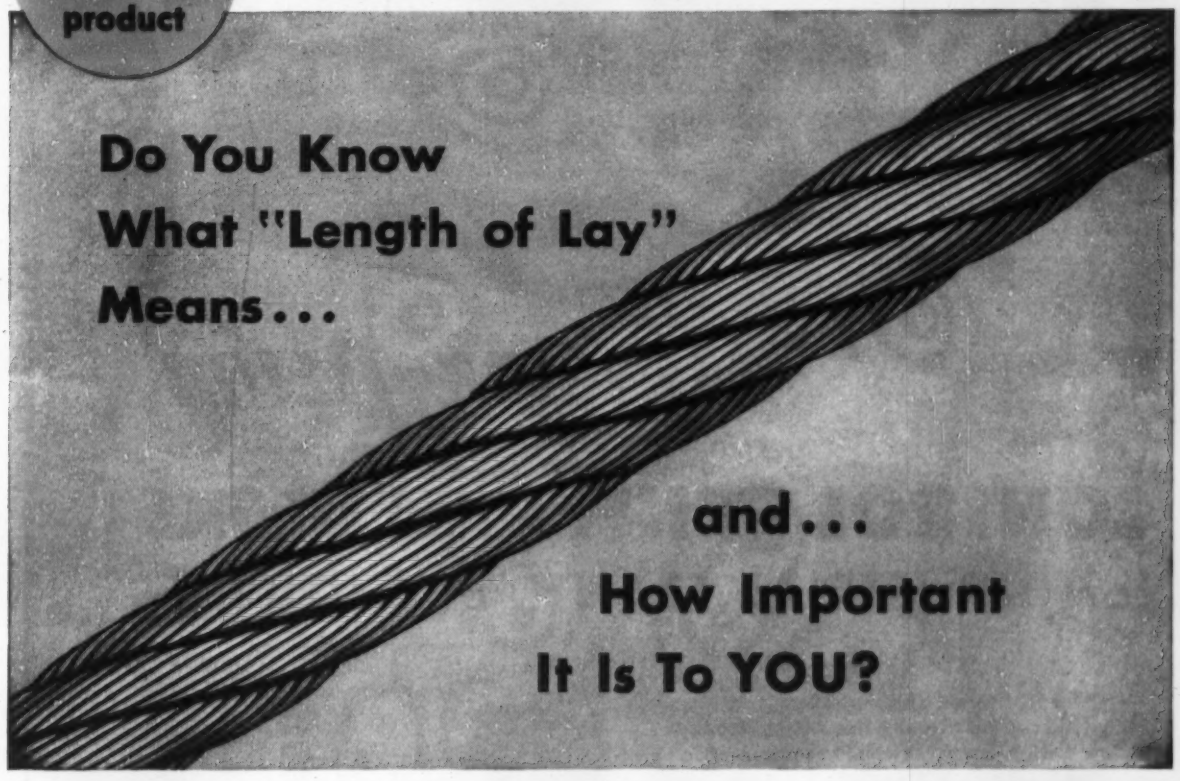
"GREEN STRAND" WIRE ROPE



Length of lay is the distance allowed for a strand to make one complete turn around the wire rope. This distance varies depending upon the construction and diameter of the rope, and upon the service requirements. The service factors which must be considered are elasticity, flexibility, stability, resistance to abrasion, and strength.

Elasticity is desired in order that a wire rope may absorb the application of loads gradually and not with sudden shock. The shorter the lay, the more elasticity in the rope. The reverse is also true.

Flexibility is that quality which a rope possesses which permits it to be flexed or bent around sheaves and drums. This property is desired from a standpoint of fatigue resistance of wires in a rope when subjected to bending stresses. An increase in length of rope lay tends to make the rope less flexible. This does not necessarily mean that a rope with a longer lay would also have less resistance to bending fatigue with which the term flexibility is often confused.

Stability of construction can be described best by observing the result of twisting the ends of a towel in opposite directions. You will find that the structure becomes harder with the increase in the amount of twisting. It will resist distortion when outside compressive force is applied. The same is true in a strand or in a finished rope. In effect, the shorter the lay the more it will resist crushing.

Abrasion resistance would seem to require more and larger crown wires per foot exposed to wear. Shortening the lay exposes more crown wires and makes the rope more flexible so larger diameter wires can be used. Then it becomes a matter for our engineers to set the length of lay to provide abrasion resistance but not at the expense of the other factors.

Strength of a wire rope is definitely influenced by the length of its rope lay. Of two ropes, identical except for their rope lay, the one with the longer lay will be stronger. Although the shortening of lays tends towards certain desirable conditions, a critical point is always reached beyond which the lay cannot be shortened without making the rope stiff.

If all this sounds mighty complicated, forget it. We don't expect you to become a wire rope engineer. That's our job—to engineer and make the best possible wire rope for you. In our "Wire Rope Recommendations for General Contractors" you will find the correct constructions of TRU-LAY Preformed "Green Strand" for your equipment. See your American Cable distributor or write us for a copy of **No. 128-B.**

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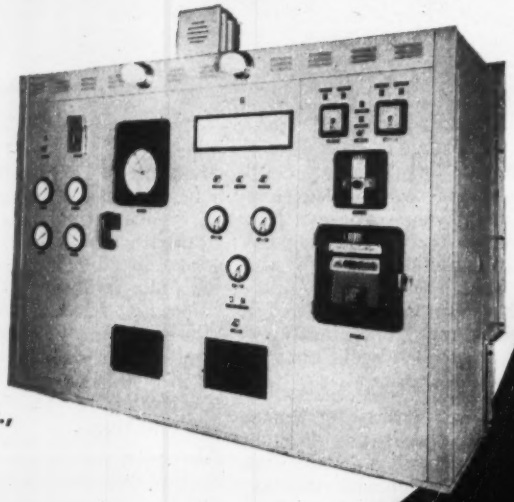

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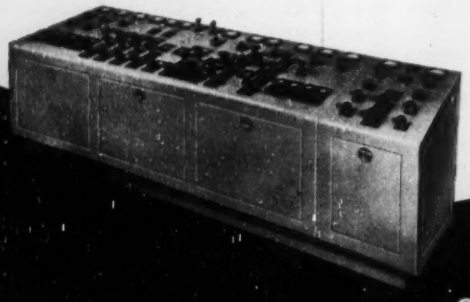


KIRK AND BLUM

SHEET METAL FABRICATION

End of a deadlock

Arabs, Israel agree on a broad master plan for developing Jordan Basin

Arab governments and Israel have accepted the principle of sharing Jordan River waters and are ready to cooperate with the U. S. in working out details of a unified development program.

Agreement has been reported by Presidential envoy Eric Johnston after four weeks of Middle East conferences with representatives from Israel, Jordan, Syria and Lebanon.

An understanding also has been reached on three other major points:

- Allocation of water between countries should be based on potential usage within the basin.
- An international control authority will be needed to supervise withdrawals of water.
- Water for irrigation and power should be stored on the Yarmuk River (a Jordan tributary) and also in the Sea of Galilee.

Division of Jordan River waters is still the big hurdle to be negotiated, and Johnston expects to resume talks in a few months to try to reconcile varying points of view.

Since World War II a series of rival hydro-electric schemes have been proposed for the Jordan. One—a $121-million program drafted by the Tennessee Valley Authority—was submitted by Johnston at a Middle East meeting last October. Almost at the same time Israel produced blueprints for harnessing its own resources to irrigate 640,000 acres and Jordan put forward a program calling for diversion of Yarmuk River water exclusively for Arab use.

The basic aim of the TVA plan is resettlement of some 200,000 Palestine-Arab refugees in the lower Jordan Valley. Its division of Jordan waters (based on a survey by Charles T. Main, Inc., Boston) would give Israel 394,000,000 cu meters yearly to irrigate 104,000 acres; Jordan, 774,000,000 for 122,500 acres; Syria, 45,000,000 for 7,500 acres. Two dams would be built—one on the Yarmuk and the other on the upper Jordan above Lake Huleh. Flood waters of the Yarmuk would be diverted to the Sea of Galilee and then released to Jordan via an eastern canal and to Israel via a western canal.

The U. S. wants the United Nations Relief and Works Agency to pay most of the cost of carrying out the project in the two Arab states. Israel would have to finance its own part of the program.

Israel, while favoring the regional plan, doesn't want to pigeonhole its private development projects. It has a $64-million scheme designed by Dr. Walter C. Lowdermilk and James B. Hays to triple its irrigation area within seven years. The first stage—diversion of the Jordan River from the Dead Sea to the arid Negeb—would provide 420,000,000 cu meters of water a year. To compensate the Dead Sea, water would be piped 25 mi across Israel from the Mediterranean.

One of the main differences between the Israeli and TVA schemes is that the former would use most of the water to irrigate its coastal plain down to the northern edge of the Negeb, whereas the TVA plan primarily would benefit land on two sides of the Jordan. In addition, Israel would irrigate at least 200,000 of its acres instead of the TVA-estimated 104,000.

Following last October's talks, both Israel and the Arab states revised the TVA scheme to suit their own purposes. Arabs wanted to store Jordan waters behind two dams on the Yarmuk. Israel proposed to double the amount of available water by piping Lebanon's Litani River (which skirts Israel) into the scheme and irrigating the Negeb.

Part of the success of the latest Middle East meetings can be determined by the fact that both the Arabs and Israel have abandoned their alternate proposals for the TVA scheme. In turn, Johnston has agreed to the Arab demand for additional dams on the Yarmuk and has ruled out irrigating the Negeb.

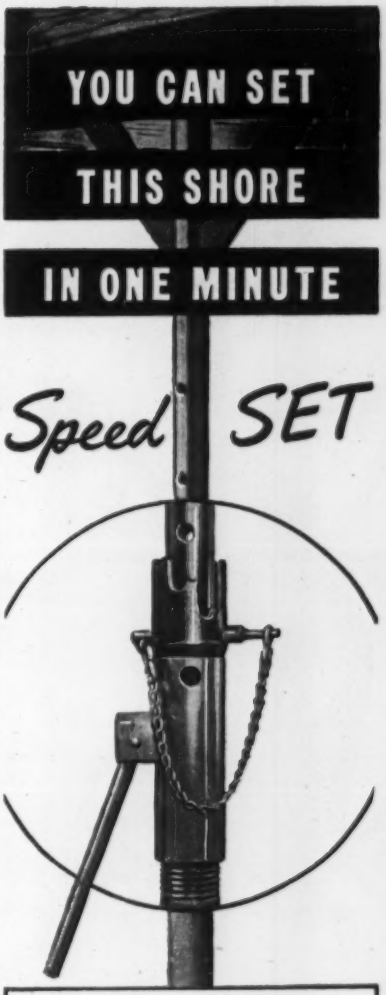
Future talks can start with at least some measure of understanding on two important points: agreement on the broad lines of a master plan and on the need for prompt development of the river basin.

Mexico City maps out canal to improve drainage system

Mexico City, now sinking at a rate of from 6 to 11 in. a year, will partially meet its perennial problem of drainage by constructing a new 6.8-mi canal.

Total cost of the project will be $15 million. Of this, $4 million will go toward construction of the canal; $4

(Continued on page 54)



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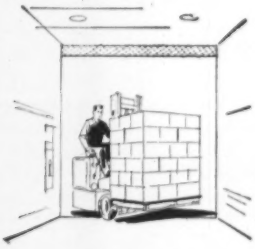
ARE DESIGNED FOR POWER TRUCK LOADING

You've got to change your thinking about freight elevators — *when you change to industrial power truck loading!* A power truck, which may weigh 8,000 pounds or more, plus its heavy pay load, sets up unusually severe off-balance, extra static loading, and heavy impact forces in the elevator car and structure.

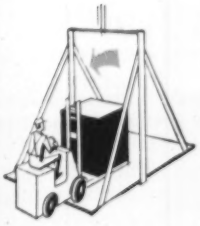


Let's examine this "punishment" in detail to see why an elevator for industrial power truck loading must be extremely rugged to stand up under these forces.

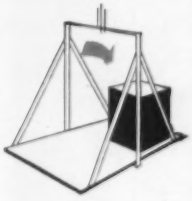
Let's start with

...OFF-BALANCE LOADING

As a power truck enters the car, it suddenly concentrates most of its weight and all of its pay load at the front edge of the platform. Then it usually deposits its first heavy pay load at a rear corner of the platform.

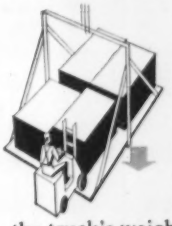


This off-balance loading "punishment" is transmitted to the car, the rails and brackets, the elevator shaft, and finally to the building structure. All of these forces must be met with increased ruggedness of design.



Now for

...EXTRA STATIC LOADING



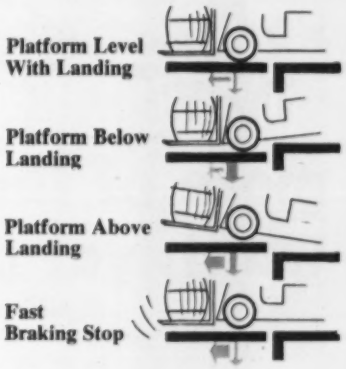
Watch the front wheels of a power truck as it deposits its final pay load. They usually stop at the front edge of the car platform. This adds up to 80% of the truck's weight to the load the elevator must withstand — which may be as high as 50% over the lifting capacity of the elevator.

This extra static loading "punishment" must be met with increased ruggedness of design.

Finally, there's

...IMPACT LOADING

Industrial power trucks travel fast, stop quickly, and deliver freight with heavy impact. They tend to tilt and twist the entire elevator structure with a variety of vertical and horizontal impact forces. See weight of the arrows in diagrams.



Impact "punishment" must be met with increased ruggedness of design. All of the forces described are at work, not singly, but simultaneously and in endless combinations.

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BEFORE you buy, compare this White Dumpy level with a similar model of any other recognized make. From every standpoint — design detail . . . quality construction . . . work-speeding, life-lengthening features and cost — you'll quickly see why a White's the best buy you can make. It will make your work faster, easier, more accurate. Check this comparison chart:

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Magnifying power of telescope	35X	30X	27X
Distance away you can read 1/100 ft. graduation	1200 ft.	1050 ft.	900 ft.
Diameter of objective lens	1.81 in.	1.485 in.	1.69 in.
Field of view (in minutes of arc)	64′	52′	60′
Coated optics	YES	YES	YES
Covered leveling screws	YES	YES	YES
Can you easily replace worn leveling screws in the field?	YES	NO	YES
Sensitivity of level vial (in seconds of arc per 2mm of graduation)	20″	20″	25″
Price — complete with carrying case, tripod and accessories — F.O.B. factory	$295.00*	higher	higher

*Price subject to change without notice.

For complete details on the 18-in. Dumpy level and other equally fine engineering instruments, see your David White dealer, or write direct to DAVID WHITE CO., 315 W. Court Street, Milwaukee 12, Wisconsin.

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million for a pumping plant to raise water so it will flow out through existing tunnels in the mountains surrounding the city; $7 million for a new collection system and sewage treatment plants.

Last year temporary measures were taken to improve the drainage system by adding 90 large pumps (ENR March 18, 1954, p. 76). They have proven successful so far, and the city suffered no floods during its recent rainy season. But by 1959, according to a report by city engineers, the present setup will not remove the sewage and pumping will be useless. The report also states that a new tunnel eventually will have to be driven through the mountains at a lower level than the present outlet for sewage.

Cuba's first hydro project: harnessing 6 of its rivers

For the first time in its history Cuba will harness the power of six of its rivers – the Hanabanilla, Guanayara, Negro, Jibacoa, Pretiles and Boquerones–to produce 82,000,000 kwh of electricity annually for agriculture and industry.

To handle the hydro-electric plant project, a corporation called PRICHEC (The First Cuban Hydro-Electric Plant) has been set up with a capital of $2 million by the Agriculture and Industrial Bank of Cuba. Under a 1953 decree, the bank was granted rights to develop and exploit waters of the six rivers.

Knappen-Tibbets-Abbett-McCarthy –the New York firm that made all the preliminary studies – has been awarded the contract to draw up plans for the plant and to supervise its construction.

International briefs . . .

• **Development price tag**—An Australian government survey of big development works reports that water supply, conservation and irrigation projects now underway will cost an estimated $751.8 million. This sum–the largest to be spent on any single class of work –does not include the Snowy Mountains hydro-electric scheme.

• **Water for the Negeb**—Israel has announced plans for a new development project involving diversion of the Yarkon River near Tel-Aviv to the Negeb desert. The $11-million program calls for drilling 8 wells, erecting 4 pumping stations, constructing 3 reservoirs with a total capacity of 107,000 cu meters, and laying 46 mi of pipe line.

Fenestra 50 YEARS

"A salute to those who made it possible" *

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Fenestra has developed a method to increase the "lateral diaphragm" action of a building. Fenestra* Cellular Steel Floor Panels in combination with a correct welding pattern provide shear resistance to seismic forces of earthquakes and to excessive wind loads and bomb shock.

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Long-span Fenestra Cellular Steel Panels also provide structural floor and finished ceiling in one material, thus saving building time, labor, material and money. Mail the coupon for your copy of Fenestra Building Panels Catalog.

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* Your need for protection of your buildings against external destructive forces encouraged us to develop a lateral diaphragm design using Fenestra Cellular Steel Panels.

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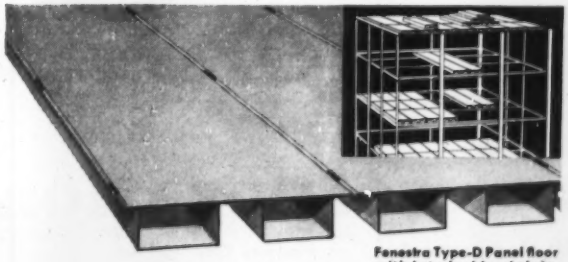

Fenestra Type-D Panel floor with interlocking joints. Note the welding pattern.

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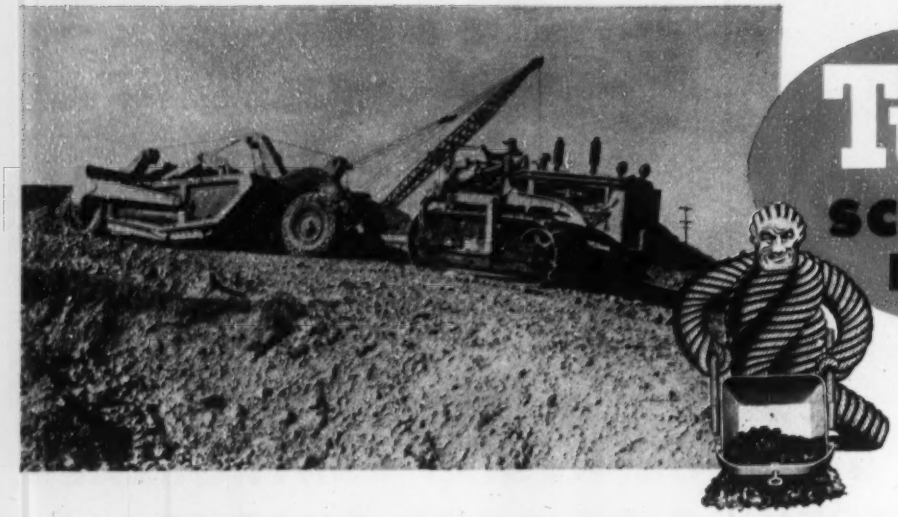

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You Move More Yardage Per Foot because Tuffy is especially constructed to withstand extraordinary drum crushing abuse. Also it is pre-shaped to take sharper bends over smaller sheaves resulting in longer service life.

Tuffy's behavior on the drum, on the sheaves and under the shock of load impact on slack line contributes to longer service life. Mount a reel of Tuffy Scraper Rope on your scraper, follow the Tuffy cut-off procedure and you're bound to move far more yardage per foot.

Easy To Order, because no complicated specifications are needed! Just state the length of reel, diameter and "Tuffy Scraper Rope!" When bidding on contracts is close, lower rope costs become an important item.

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Tuffy stamina plus systematic cut-off procedure from mounted Tuffy reel can treble service life . . . Available in ½" and 9/16" in 150' lengths.

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WARREN COOLIDGE found 35% of Nashville's populated area unsewered when he took office nine years ago. But, despite population growth, this deficiency has been reduced to 4%.

Professor has new career in city hall

APWA presidency to honor Nashville public works chief, who took year's leave from Vanderbilt to aid city back in '45

Warren A. Coolidge had 22 years as a professor of civil engineering at Vanderbilt University behind him when Nashville, Tenn., asked that he take a one-year leave of absence to straighten out its tangled sewer and street problems.

That was in 1945.

Today, after nine years as a public works administrator in Nashville, Warren Coolidge has been tapped to serve a year as president of the big and growing American Public Works Assn. He will be handed the gavel by APWA President Milton Offner at the Public Works Congress in Atlantic City next week.

Coolidge, at 54, commands a department with 350 employees as director of public works for Nashville. His responsibility covers streets, sewers and city buildings. It's a far cry from his professorial duties at Vanderbilt; but he likes it.

Back in 1945, Nashville was having an intramural political tug-of-war. It produced an untenable situation, and Public Works Commissioner Luther Luton, now dead, asked Professor Coolidge if he would consider taking leave from his teaching to help pull together public works affairs.

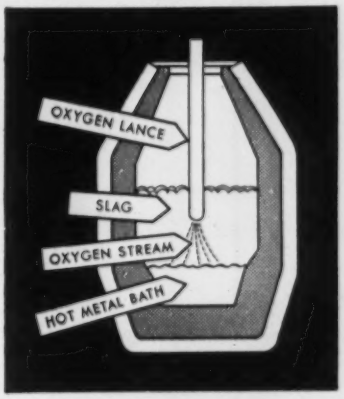
Coolidge obliged; one year led to two—and so on to the present.

In nine years he has spent $9 million in bonds for streets and sewers. The 35% of Nashville's populated area that he found entirely unsewered has been reduced to 4% despite population growth. He inherited 400 mi. of streets; 250 mi have been built new or repaved. Garbage was picked up every 10 days back in 1945; now it is

(*Continued on page 58*)

what's NEW in Engineering

To cut refining costs of steel, Kaiser Engineers has acquired the exclusive U. S. rights for the Brassert Oxygen Converter Process of producing high quality steel. Recognized as an advanced development



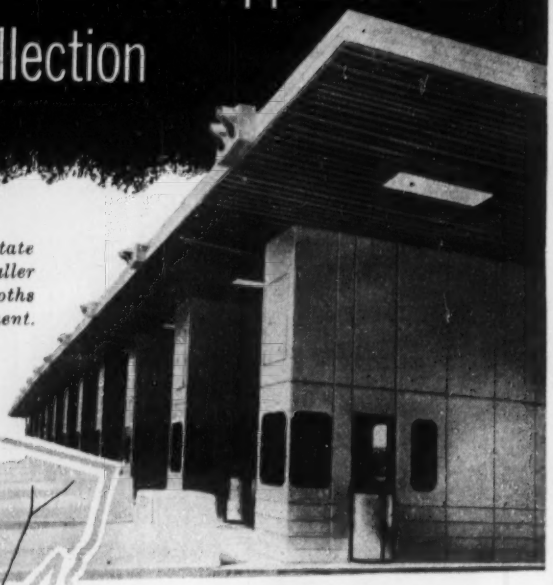
in steelmaking, the oxygen process promises a definite saving in refining costs of at least $3.00 per ton. Investment cost is also lower, as one 35-ton oxygen converter will produce as much as three 175-ton open hearth furnaces at half the estimated capital investment. Write us for a brochure describing the process in detail.

The largest construction contract in Australia's history has been awarded to the Kaiser-Walsh-Perini-Raymond group of American contractors. With Kaiser Engineers as the project's sponsor, the group will construct a dam and mammoth 14-mile water tunnel through the Snowy Mountains of Southeast Australia.

Asme Handbook Metals Properties. This is Volume I of a four volume handbook sponsored by The Metals Engineering Handbook Board of the American Society of Mechanical Engineers. Published by McGraw-Hill, METAL PROPERTIES tabulates strength, hardness and the other properties of over 500 metals.

Whatever your immediate research, design or engineering problems, however unusual they may be, an early consultation with Kaiser Engineers is an important step toward their quick, profitable solution. Call or write Kaiser Engineers Division of Henry J. Kaiser Company, Kaiser Building, Oakland 12, California.

GARDEN STATE PARKWAY pioneers a new approach to toll collection



The 168 mile Garden State Parkway uses only Taller and Cooper Toll Booths and Collection equipment.

New Jersey's newest toll turnpike is the nation's longest superhighway using a barrier toll system, with each type of vehicle paying a fixed toll at specific locations, regardless of distance travelled. On other superhighways, motorists pay on the basis of both the vehicle type and the distance.

Each system has its own advantages. And each works best with a Taller & Cooper toll collection system designed specifically for it.

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collected twice a week and taken to four sanitary landfills which have replaced open dumps.

Coolidge and R. L. Lawrence, city waterworks director, are special consultants to the mayor on Nashville's $11-million sewage treatment plant, which is now under construction and scheduled to be finished about January 1956.

By 1947, Warren Coolidge had decided he liked public works administration. And as a clincher the state legislature put his position under civil service. He decided to stay, resigned his professorship.

Administrator Coolidge has a weekly meeting of his division heads. "The secret of any good administrator is his ability to gather around him qualified personnel," he says. Between weekly meetings there is a steady flow of callers to his office. And when in the field, he keeps in touch by radio telephone.

Speaking fondly of the American Public Works Assn., which he will now lead as president for one year, Warren Coolidge says:

"That association means more to public works administrators all over the country than I can possibly tell you. It is the only organization primarily interested in what its name implies. If I can make the delegates who attend this session in Atlantic City appreciate this a little more, my time will have been well spent."

Among his other activities besides APWA, Coolidge is a member of ASCE and a former president of the municipal division of the American Road Builders Assn. He is a graduate of the University of Kansas, '24, and is author of "The Application of Linear Differential Equations in Solving the Elastic Curve for Complex Loading Conditions."

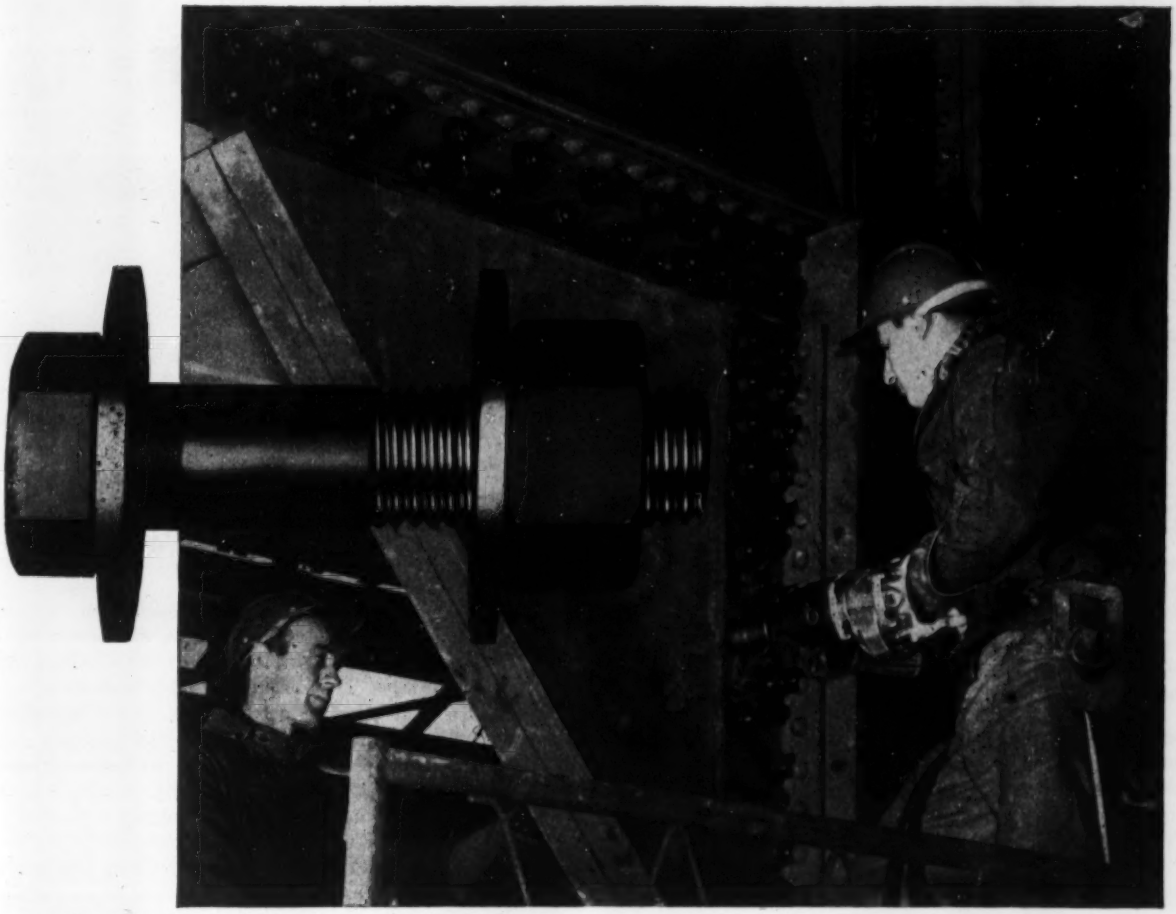
Appoint new roads chief for Indian Affairs office

Robert J. Trier, for the past eight years assistant chief, has been named chief of the branch of roads, Bureau of Indian Affairs, Department of the Interior.

Mr. Trier succeeds J. M. Brown, who retired at the end of August after 21 years of service to the bureau —the last 13 as roads chief. Mr. Brown, now 70, is a graduate in civil engineering of New Mexico State College, and before entering bureau service, was a full professor and head of the engineering department at the University of South Dakota.

Mr. Trier, a civil engineering gradu-

(*Continued on page 62*)



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Bethlehem High-Strength Bolts save erection time because they can be installed by two men using a holding wrench and a pneumatic impact wrench. The hexagonal-head bolts are used with two hardened washers, one placed under the head, the other under the hexagonal nut. Tightening can be accomplished in from 5 to 10 seconds per bolt, to obtain maximum clamping force.

Bethlehem High-Strength Bolts are made of carbon steel, in diameters from ½ in. to 1¼ in., and in varying lengths. They are heat-treated by quenching and tempering to meet the requirements of ASTM Spec. A-325.

For full information about how Bethlehem High-Strength Bolts can help speed your construction work, get in touch with the nearest Bethlehem sales office.

MECHANICAL PROPERTIES OF BETHLEHEM HIGH-STRENGTH BOLTS

Bolt Diameter	¾ in.	⅞ in. and 1 in.
Brinell Hardness	241 to 302	235 to 302
Min. Tensile Strength, psi	120,000	115,000
Min. Proof Load, psi	85,000	78,000

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BETHLEHEM STEEL

"Can't be beat for clean-up and shoulder work"

Supt. for S. J. Groves & Sons praises D Tournapull on New York State Thruway

With 1,800,000 cubic yards to move for the Waterloo Section of the New York State Thruway, 60 miles east of Rochester, S. J. Groves and Sons Company, Minneapolis, assigned 1,100,000 yards to 10 crawler-drawn LeTourneau-Westinghouse pans. Later in the job, they brought in 6 Tournapulls—three 16-yd. "C's" and three 7-yd. "D's" — to handle 300,000 yards.

Despite wet, muddy conditions, the 6 Tournapulls moved dirt every day the crawlers could. Exclusive differential, which automatically transferred power from slipping wheel to wheel on firmest footing, took the 'Pulls through muck sometimes belly-deep.

"D's" handle 7 types of jobs

Of their 7-yd. "D's", company officials seemed particularly pleased. These 28 mph units, they pointed out, proved large enough and fast enough to work profitably in pusher fleets right along with the C Tournapulls and large crawler-scrapers. The "D's" also self-loaded to economically handle a number of scattered "one-man, one-machine" assignments, thereby keeping the bigger scrapers free for major dirtmoving. And, when production work was completed, the versatile "D's" stayed behind to clean up. In all, they handled these 7 special assignments:

1. Hauled 30,000 cubic yards of topsoil for spread on landscaped areas of approaches and overheads. Typical output on 1000′ cycles: 20 loads (110 pay yards) per Tournapull per 60-minute hour.
2. Built interchanges, hauling up to 25,000 yards of sand, clay, and loam per job.
3. Traveled between concrete forms to self-load and remove excess gravel before paving.
4. Backfilled around bridges and culverts.
5. Cut 6 miles of ditches.
6. Finish-graded shoulders.
7. Used cable hitch to keep motor patrol from sliding off while finishing steep side-slopes.

"These D Tournapulls," says Project Superintendent Andy DeSimon, "are the best machines we've had for clean-up and shoulder work. They can't be beat on this scattered type of operation."

Whether you have just a few units or several fleets, take a tip from S. J. Groves . . . investigate D Tournapulls soon! Their speed, self-loading ability, and job-

Ability to turn around non-stop in space only 25'4" wide cuts vital seconds off each cycle. For other work, scraper interchanges with 10-ton rear-dump, 10-ton lift-and-carry crane, or 10-ton flatbed.

Cable-equipped "D" easily holds motor patrol on side-slope. Big low-pressure tires do no damage to concrete, curbs or tracks. Unit is light enough and narrow enough to drive job-to-job through cities and over main roads.

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

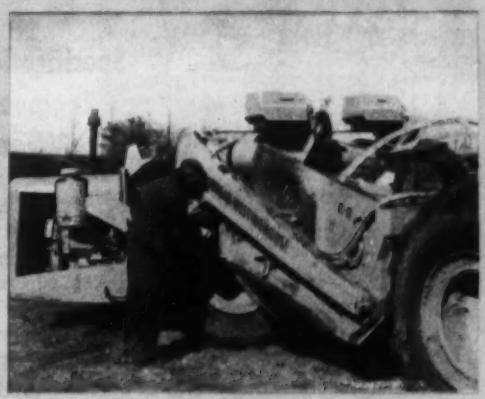
A Subsidiary of Westinghouse Air Brake Company

Tournapull spreads heaped load of topsoil over shoulder in less than 15 seconds. "The 'D' sure moves a lot of dirt!" says Operator Wayne Morrow. "It rides nice, too. You don't have the actual labor you do when you operate other rigs."

to-job mobility make them ideal for use with bigger scrapers, either in production work or for clean-up. With thousands of "D's" now in the field, chances are you'll be bidding with 'em or against 'em from now on. We'll gladly demonstrate one on your present job to show why we think you should be bidding *with* 'em.

Recently, Westinghouse Air Brake Company purchased from R. G. LeTourneau, Inc. their earthmoving and related products together with their Peoria, Toccoa, and Australian factories. Adding the high quality standards, precision manufacturing experience, and research facilities of Westinghouse Air Brake to the earthmoving developments of LeTourneau, gives you assurance that the improved line of equipment offered by this new company is the finest available. Be sure to check LeTourneau-Westinghouse before you buy.

Push-loading heaps 5½ pay yds. of topsoil in 40 seconds. Complete 1000′ cycles from stockpile to spread on shoulders take just under 3 minutes. Rig also self-loads effectively. Or it can be shovel-loaded.



Saves 20 minutes lubrication time daily

"D Tournapulls are the easiest of all machines to lubricate," says Mechanic William Robinson. His experience shows that daily lubrication on each "D" takes 10 to 15 minutes, compared to an average of 30 minutes for each crawler and pan. Complete servicing (oil change, battery check, etc.) takes 40 minutes on the D Tournapull, 60 to 80 minutes on a crawler and pan.

Tournapull—Trademark Reg. U.S. Pat. Off. PDP-608-H

Now available . . . FREE — a valuable new reference book — "Earthmoving — An Art and a Science." Contains 60 pages of detailed information on how to increase output and lower dirtmoving costs. Unbiased. Written by experienced field engineers . . . checked by veteran dirtmovers. For your postpaid free copy, send coupon today to LeTourneau-Westinghouse Company, Peoria, Illinois.

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MEN AND JOBS

ate of the University of Wisconsin, first joined the roads branch in 1933. He will be succeeded as assistant by R. M. Dunlap, now supervising highway engineering for the bureau of Window Rock, Ariz.

Men and Jobs briefs . . .

• **Careers—Philip I. Baker,** recently retired as a colonel of engineers, has been named head of the structural division of Carroll E. Bradberry & Associates, Los Altos, Calif., consulting engineers . . . **C. R. Richardson,** formerly of Maxon, and **F. W. Stout, Jr.,** formerly of DuPont, have joined the engineering staff of Carbide and Carbon Chemicals Co. at Oak Ridge, Tenn. . . . **Frank R. Sherman** has joined the American architect-engineer group on the Spanish Bases project, after serving as general manager for Skidmore, Owens & Merrill on their work at Okinawa.

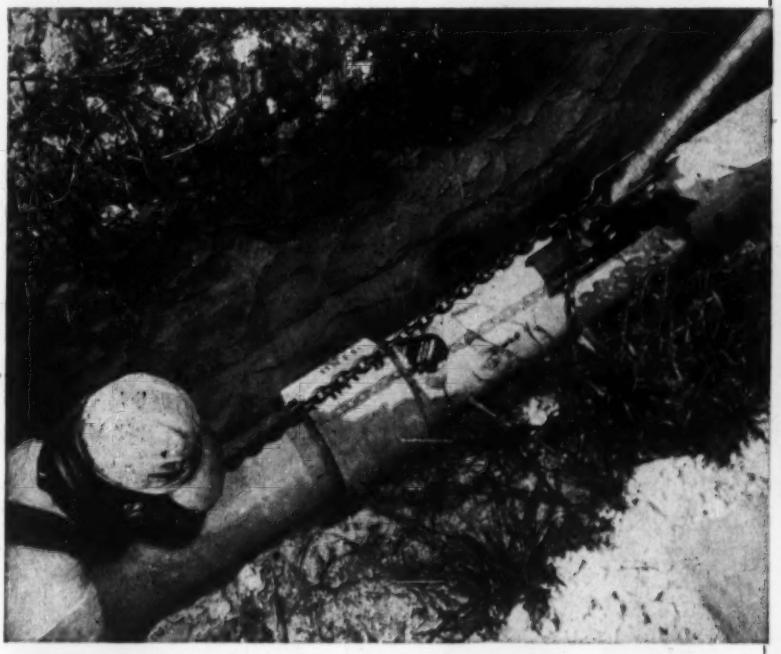
Sam Rukvun and **J. E. Hughes,** engineers for Kaiser Engineers Division, have been appointed assistants to the vice-president of the division . . . **Albert Repscha,** formerly of Drexel Institute, is now chairman of engineering at Los Angeles State College. . . .

Philip R. Garges, who retired recently as an Army engineer colonel, becomes staff engineer for The Citadel . . . **Rear Admiral C. A. Trexel** has become a partner in Tudor Engineering Co., San Francisco . . . **Howard Lull** is now chief of the division of watershed management at Upper Darby, Pa., for the U. S. Forest Service . . . **Arden W. Morgan** is now vice-president of Grove Shepherd Wilson & Kruge.

• **Honors—E. A. Moritz,** who retired after 30 years as a top Reclamation Bureau engineer, has been named to membership in the Colorado River Commission . . . **R. H. Gray,** Carpenter union official, is now a member of the Philadelphia Redevelopment Authority.

• **Army engineers—Col. Delbert B. Freeman,** Upper Mississippi Valley Division engineer for two years, reassigned as Chief of Technical Liaison Division, Office of Chief of Engineers . . . **Col. J. T. O'Neill** becomes district engineer, New York District . . . **Lt. Col. A. D. Wilder Jr.,** new executive officer, Sacramento District . . . **Col. A. H. Bagnulo,** St. Paul District Engineer has been posted to Iceland, as area engineer.

How to save time on water line installation



On this 12" New England installation of Ring-Tite Coupling, the contractor's bid was based on installing 400 feet per working day for the job conditions prevailing. Actual laying time averaged over 700 feet per day!

Actual experience on this New Jersey installation by a prominent water works utility established entirely new concepts of installation savings effected by the Ring-Tite Coupling. On the job shown, 600 feet of pipe were laid in 5 hours.

On this Florida installation a rate of progress as high as 640 feet an hour was achieved—exceeding by far the speed anticipated considering the job conditions.

Install Transite® Pressure Pipe with the new Ring-Tite® Coupling

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Pipe ends are automatically separated within the coupling. This separation gives the line flexibility to withstand shock and vibration, relieves line stresses, permits conformance to curves.

Like Transite Pressure Pipe, the Ring-Tite Coupling sleeve is made of asbestos and cement . . . it is strong and durable, cannot rust, and is highly resistant to corrosion. Installations can be completed under adverse weather, temperature or terrain conditions. No complicated equipment is required.

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Especially when it costs you nothing to try out a P&H 105 Truck Crane right on your own jobs. Try it just one day, and you'll agree that here is something really outstanding. Not just a fancy paint job and pair of fenders, but a fast modern work horse that fills the bill 100% for its rated capacity. *Save your bigger machines for more profitable work.*

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OBITUARIES

Salvatore Mammano, Sr., 81, former building contractor of Rochester, N. Y., died August 8. He operated his business for 45 years before retiring in 1948.

Matthew Murr, 80, a retired building contractor of Buffalo, N. Y., died August 9. He founded his contracting firm in 1924.

William T. Boice, 83, a retired civil engineer, died July 18 in Philadelphia. He was employed for 35 years as chief engineer with the firm of Firth & Foster, and later with Nazareth Hospital at Philadelphia.

John M. McLean, 46, highway inspector with the North Carolina Highway Department, died August 7. He had been with the road department for 25 years.

Merle J. Trees, 71, since 1945 chairman of the board of Chicago Bridge & Iron Co., died August 6 in Chicago. He received his engineering degree from the University of Illinois, and started his career with Chicago Bridge in 1910 as an estimator and contractor.

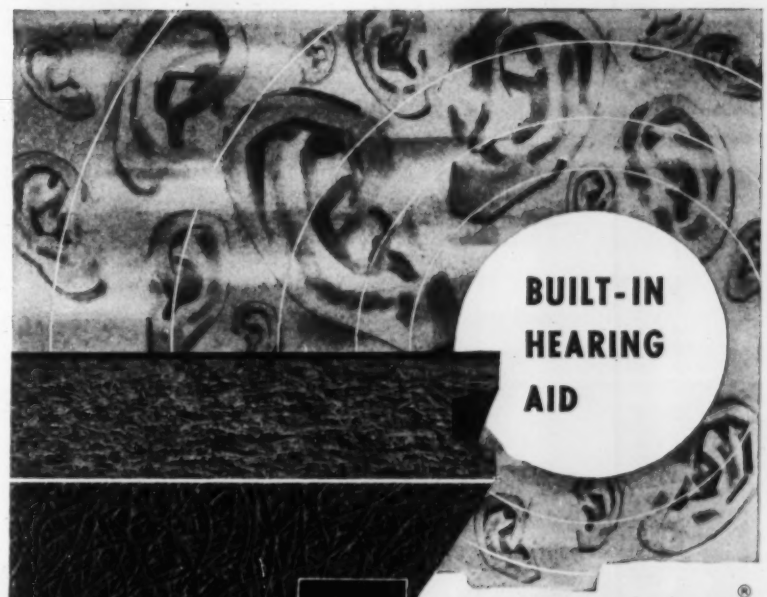
Walter E. Ritz, 53, head of the Walter E. Ritz consulting engineering firm, New York City, died at Mountain Lakes, N. J. August 15. He was a graduate of Stevens Institute of Technology.

John W. Gorman, a civil engineer for O'Neill Construction Corp., Syracuse, N. Y., died August 20.

Raymond H. Washburn, 67, a retired Milwaukee civil engineer, died August 19. A graduate of the University of Wisconsin, he was associated with Newton Engine Corp. and Stone Construction Co. He also served as an engineer with the Reconstruction Finance Corp. in Washington, D. C.

Simon Yellin, 70, a builder in the Philadelphia area for over half a century, died August 11. Until retirement 10 years ago he was associated with S. Yellin & Son, Inc., a firm he founded in 1900.

Dwight B. LaDu, veteran engineer for the State of New York and chairman of the Albany Port District Commission from 1936 to 1945, died August 16 in Albany, N. Y. He directed many of the major canal and terminal construction projects on New York's inland waterways.



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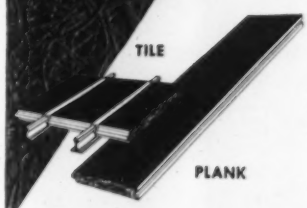

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BOOKS

Reclamation dams

DAMS AND CONTROL WORKS—Third Edition. By the staff of the Bureau of Reclamation. 218 pp. Obtainable from the bureau, Denver Federal Center. Denver, Colo., or from the Superintendent of Documents, Washington 25, D. C. $2.75.

This new edition of the Bureau of Reclamation's published record of the principal dams it has built adds information concerning 12 dams built or completed since the second edition was issued in 1938. Also included are chapters on some of the structures covered in that report, notably Grand Coulee and Hoover Dams.

A new feature is a general chapter on the design of dams which outlines the steps followed by the engineers of the bureau from site selection through foundation treatment to design methods. It covers both concrete and earth dams.

There also is a chapter on reservoir outlets and spillway gates.

Suspension bridge studies

AERODYNAMIC STABILITY OF SUSPENSION BRIDGES—Bulletin 116, University of Washington Engineering Experiment Station, Part IV—Model Investigations Which Influenced the Design of the New Tacoma Narrows Bridge—by F. B. Farquharson. 103 pp. Part V—Extended Studies: Logarithmic Decrement, Field Damping, Prototype Predictions, Four Other Bridges—by George S. Vincent. 104 pp. Limited free distribution by the Engineering Experiment Station, University of Washington, Seattle, Wash.

These two reports complete a five-part series that set forth results of a decade-long research program that started even before the dramatic failure of the original Tacoma Narrows Bridge. The first three reports have been available for some time. Part II was abstracted in detail in ENR Jan. 11, 1951, p. 32.

Part IV deals with model studies that aided the design of the new Tacoma Narrows Bridge. Much of the data has been presented in piecemeal from elsewhere (including ENR Nov. 29, 1945, p. 64). But the new report makes it all available in one place. Of significance, for example, is research showing the difference in aerodynamic behavior between a solid deck and a slotted deck—the latter was used in the new design. Also included is a chapter on model tests of the Golden Gate

(*Continued on page 68*)

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Bridge which was the only existing structure similar to the preliminary Tacoma study. Additional tests were made at the University of Washington in 1953 looking into the effect of adding a bottom lateral system to the Golden Gate Bridge, which job is now under way (ENR June 24, p. 46). But data on these tests are not yet released.

Part V is a potpourri of reports on special problems that tie loose ends not covered in earlier reports. Much consideration is given to damping, which is still the most significant unknown in the suspension bridge vibration field.

Perhaps the most useful chapter in the whole five-part bulletin is one that shows how the research results can be applied to other bridges. Four structures are analyzed: George Washington Bridge, Bronx-Whitestone Bridge, Golden Gate Bridge and the new Paseo Bridge at Kansas City. These specific instances show how the decade-long, monumental research program can be put to use in analysis of proposed suspension bridge designs.

Wood design specifications

TIMBER CONSTRUCTION STANDARDS—50 pp, paper-covered. American Institute of Timber Construction, 1757 K St., N. W., Washington 6, D. C. $2.

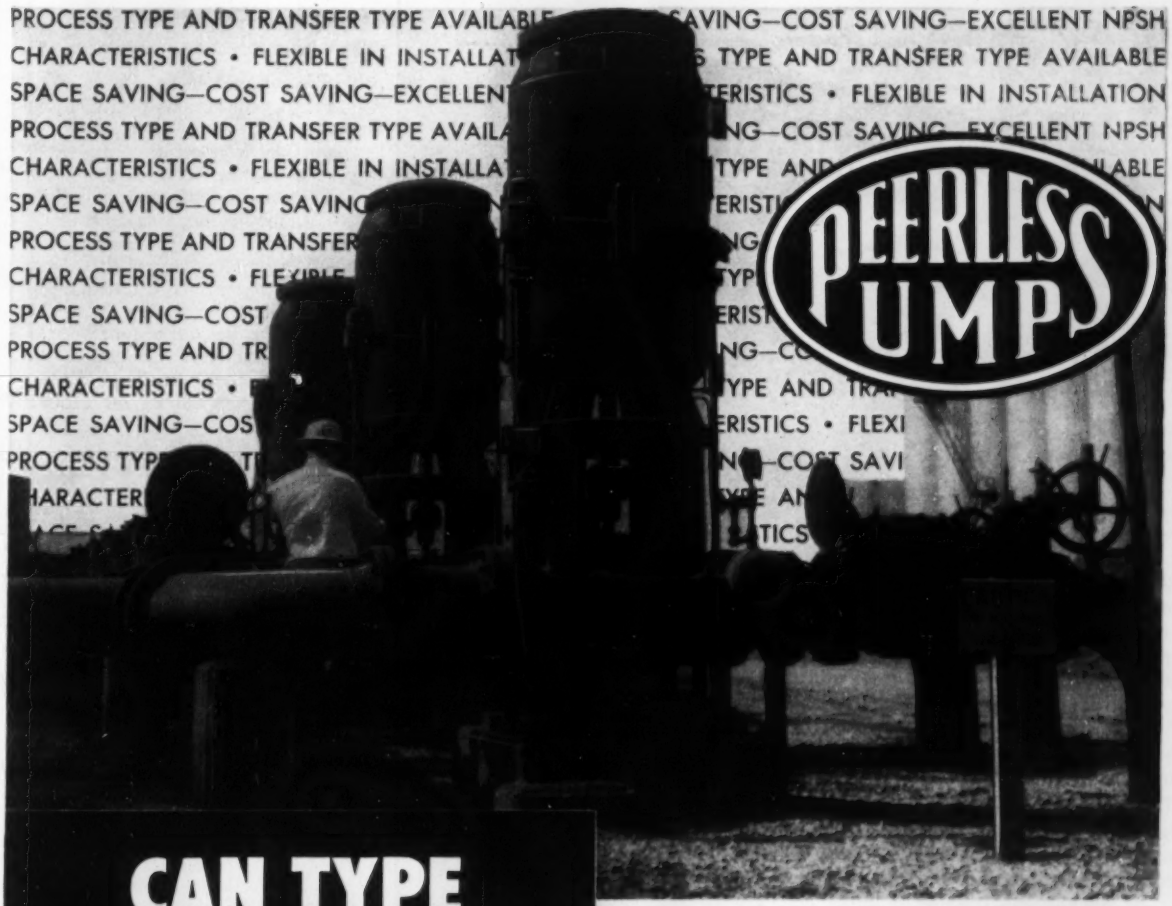
With the publication of these standards, there is now available for the first time national standards for engineered timber construction. Previously, the lumber industry had developed specifications for stress-grades of lumber and glued laminated lumber, and basic design data, including allowable stresses, for lumber and allowable loads for fasteners. These have been incorporated by reference in the new standards.

Included in the booklet are specifications for the design of structural timber framing, minimum fabrication and erection standards, outline specifications for structural timber framing and a code of standard practice. The standards were prepared by the AITC Standards Committee, headed by Frank Benzen, president, Timber Structures, Inc., of California, Richmond, Calif., with the aid of about 500 consultants.

Miscellaneous notes

• **Community Builders Handbook,** originally published in 1947, has been revised and enlarged. Based on the experience of builders who have constructed some of the outstanding resi-

(*Continued on page 70*)



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To dig from a river, deep pit or soft area beyond the reach of the boom, the Crescent is hung from a trolley that rides on a track cable. The cable extends from the boom tip to an anchorage. Digging, hauling and discharge proceed as in the casting operation. Following discharge, the scraper is lifted and gravity-returned to the excavation point by merely tightening the track cable.

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Above, a 2½-cu. yd. Crescent scraper is used on a 1-cu. yd. boom dragline and the yardage rises to 270 cu. yd. per hour. The scraper is taking gravel from a roadside pit and delivering to a movable truck loader.

In this picture a Crescent scraper hangs from a trolley that rides on a track cable extending from the tip of the boom to an anchorage across the river. Thus, it is able to excavate far beyond the reach of the boom and haul material onto the bank.

Write for Field Report 219, Scrapers with Boom Machines and Catalog J, Scraper Buckets

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BOOKS

dential communities in the country, it covers in two sections planning and financing of community developments. One section—on residential development—has been expanded to include up-to-date information on site selection, market analysis and subdivision design, while the second section—on shopping centers—has been completely rewritten to include experience gained since 1950. The 300-page book can be purchased from the Community Builders' Council of the Urban Land Institute, 1737 K St., N. W., Washington 6, D. C., for $12.

• **A bibliography** of engineering seismology has been published by the Earthquake Engineering Research Institute. It contains approximately 1,000 selected entries pertinent to the engineering aspects of earthquake and earthquake resistant construction. Copies may be obtained from R. W. Clough, Division of Civil Engineering, University of California, Berkeley, Calif. for $3.50.

Reports and pamphlets

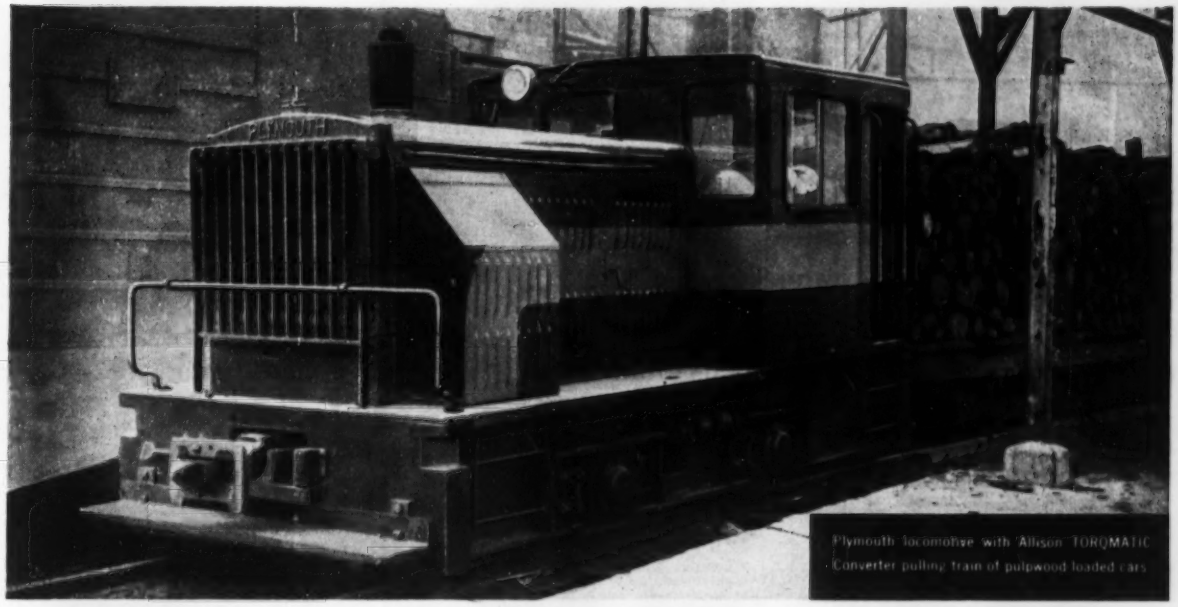
WATERWAYS EXPERIMENT STATION—Recent Publications of the Waterways Experiment Station, Vicksburg, Miss., include the following: Investigation of Durability of Concrete Exposed to Natural Weathering, Summary of Results, 1936-1953 ($1.00); Permeability and Triaxial Tests of Lean Concrete ($1.00); Field Soniscope Tests of Concrete, 1953 Tests ($0.50); Ultrasonic Investigation of Cracking in Kansas City Floodwall ($0.50); Surges in Southern Outfall Sewer and Flow Conditions in State Fairgrounds Pumping Plant Louisville, Kentucky ($1.00); Spillway and Conduits for Pine Flat Dam Kings River, Calif. ($1.00); Flood-Control Project for Allentown, Penn. ($0.75); Submergible-type Tainter Gate for Spillway Cheatham Lock and Dam Cumberland River, Tenn. ($1.00); Tests of Membrane-Forming Compounds for Curing Concrete ($1.00); Old River Control Structure Sediment Diversion ($1.00).

FORMULAS AND TABLES FOR THE COMPUTATION OF GEODETIC POSITIONS ON THE INTERNATIONAL ELLIPSOID—Special Publication No. 200, Coast and Geodetic Survey. For Sale by the Superintendent of Documents, Washington, D. C. $0.40.

MAINTENANCE TIPS FOR UNPAVED ROADS—Calcium Chloride Institute, 909 Ring Building, Wash. 6, D. C. Free.

Building, Washington 6, D. C. Free.

CALCIUM CHLORIDE FOR STABILIZATION OF BASES AND WEARING COURSES—Calcium Chloride Institute, 909 Ring



Plymouth locomotive with Allison TORQMATIC Converter pulling train of pulpwood loaded cars

Shock-Free Power Transmission Saves $500 a month

PRODUCTION jumped almost 100% when, in December 1950, *one* 18-ton locomotive equipped with an Allison Torque Converter replaced *two* 12-ton trolley-type locomotives owned by West Virginia Pulp and Paper Company.

Immediate savings came to $500 a month — the cost of a locomotive coupler. The trolley-type locomotives damaged an average of one coupler each month but smooth power transmission by the Allison TORQMATIC Converter eliminated this replacement expense.

And by November 1953, *savings in couplers alone* paid for a second Allison TORQMATIC-equipped locomotive.

Maintenance on these two units is "practically nil" because the Allison Converter automatically matches engine power to load demand, prevents engine lugging and drive-line shocks. Each unit uses less than 1 gallon of Diesel fuel an hour, pulls trains up 4½% grades, works an average of 16 hours per day.

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An Arizona mine gets 41% longer tire life on big truck tires costing $1000 or more each.

A Pennsylvania dragline operator saves $2160 a year on cable alone.

A western contractor gets 100% longer transmission life on off-highway trucks.

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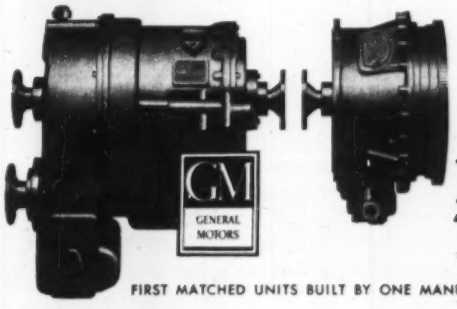
Compactness simplifies installation

Designed for power application in the 40 to 400 h.p. range

Longer Equipment Life — absorbs shock, eliminates engine lugging, cuts maintenance cost.



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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
I. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Massachusetts—TRAFFIC CONTROL SIGNALS—BA 9/21—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, furnish, install traffic control signals, East and Carew Sts., Chicopee, $4,500. Plans deposit $5 refundable.

† **Conn., New London**—BA 9/23—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, N. Y., repairs to roads and curbs U. S. Naval Underwater Sound Laboratory, Fort Trumbull, NOY 84980, Spec. 44556.

▲ **MASSACHUSETTS**—BA 9/28—Massachusetts Turnpike Auth., 80 Boylston St., Boston,

West Springfield and Chicopee—superstructure steel work Connecticut River Bridge (Boston to New York State Line Thruway), Contr. 51-060, $1,700,000. Plans deposit $10, no refund, Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11, under Streets and Roads.

▲ **R. I., Newport**—BA 9/29—City, Director P. Wks., City Hall, Contr. H, sewerage treatment plant. Approx. $1,100,000. Plans deposit $50. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 5/23/51.

† **Me., Bangor**—OPERATIONS, etc.—BA On Or About 10/10—U. S. Eng., 857 Commonwealth Ave., Boston 35, Mass. base operations bldg. and control tower, Dow Air Force Base, ENG-19-016-55-25. CD 12/12/52.

BIDS ASKED—BUILDINGS

▲ **Mass., Newton** — WAREHOUSE — BA 9/22—Jordan Marsh Co., 450 Washington St., Boston, Mass., 500,000 sq. ft. warehouse, 275 Grove St. $3,600,000. Extended date. David Griswold, 80 S. 7 St., Minneapolis, Minn., archt. CD 8/25.

▲ **Mass., Boston**—LABORATORY—BA 9/28—Massachusetts General Hospital, Fruit St., (selected list bidders) 7 story, brick, stone, rein.-con. pathology and bacteriology laboratory, Allen St. $1,260,000. Shepley, Bulfinch, Richardson & Abbott, 1 Court St., archts. CD 8/10/51.

▲ **Mass., Lowell**—SCHOOL—BA 10/7—City Comr. P. Wks., City Hall, Morey Junior High School, Fleming and Van Grundy Rd. $ 1,500,000. Plans deposit $100. M. A. Dyer Co., 24 School St., Boston, archt. Thomas Murphy, 51 Cornhill St., Boston, structural engr. CD 12/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **W. H. Hinman, Inc.**, Anson, Me. LB $184,000, est. $200,000. utilities, Naval Air Station, NOY 83672, Spec. 43291, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston, Mass. Bids Aug. 24. CD 8/18.

New England Dredge & Dock Co., 60 S. Water St., New Haven, Conn., LB, $149,500, dredging Scituate Harbor, Center and North Basins, Scituate, MASSACHUSETTS. Commonwealth of Mass., 100 Nashua St., Boston, Mass. Bids Aug. 31. CD 8/23.

▲ **Pecella Brothers, Inc.**, Dedham, Mass., LB $2,250,805 Contract No. 35, Third Provin Mountain Conduit, Agawam, West Springfield and Springfield, SPRINGFIELD, MASS. City Bd. Water Comrs., Municipal Bldg., Springfield, Mass. Bids Aug. 31. CD 8/24.

▲† **St. Paul Constr. Co.**, 655 Boylston St., Boston, Mass., CA, $1,500,000, 150-unit military housing; CA $98,825, on-site utilities, Squantum Air Base, SQUANTUM, MASS. First Naval Dist., 495 Summer St., Boston, Mass. Arthur G. Manaselian, 30 Huntington Ave., Boston, Mass., archt.

Perna Brothers, Inc., 85 Railroad Ave., Greenwich, Conn., CA, $81,193, pavement, curbs, drains, etc. East Elm St. and Davis Ave., GREENWICH, CONN. Town Dpt. P. Wks., Greenwich, Conn. Bids Aug. 2. CD 8/2.

BUILDINGS

LOW BIDS AND CONTRACTS

Granger Constr. Co., Inc., 306 Main St., Worcester, Mass., LB, $888,850, est. $850,000. HOSPITAL, Union St., ELLSWORTH, ME. Eastern Memorial Hospital, Ellsworth, Me. Bids Aug. 25. CD 8/6.

Columbia Constr. Co., 10 Tremont St., Boston, Mass., LB, $521,949, elementary SCHOOL, Central St., FOXBORO, MASS. Town Bldg. Comm., c/o Supt. of Schools, Liberty St., Foxboro, Mass. Bids Aug. 27. CD 8/13.

Edwin Moss & Son, Inc., 555 Grant St., Bridgeport, Conn., CA, $750,000. FACTORY, Fairfield Side Ash Creek, opposite Scofield Ave., FAIRFIELD, CONN. Bridgeport Hardware Mfg. Corp., 463 Iranistan Ave., Bridgeport, Conn. Herbert C. Elton, 1188 Main St., Bridgeport, Conn., archt.

▲ **John Zandonella**, 70 Chase St., Bridgeport, Conn., CA, $1,500,000. heating control mfg. PLANT and OFFICE, MILFORD, CONN. Bridgeport Thermostat Div., 1225 Connecticut Ave., Bridgeport, Conn. Bids Aug. 26. CD 8/17.

Southern New England Constr. Co., 66 Sanford St., Hartford, Conn., CA, $500,000, MEETING HOUSE, 701 Farmington Ave., WEST HARTFORD, CONN. Temple Beth Israel, Richard Koopman, chn. Bldg. Comm., West Hartford, Conn. Kane & Fairchild, 734 Asylum Ave., West Hartford, archts.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New York — GENERATOR, DELINEATORS, FENCING — BA 9/30—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, emergency generator facilities and canopy signs at 40 interchanges or barriers, New York State Thruway-Hudson-Catskill-Mohawk and Ontario Sections (toll plazas), Contr. T.U.B. 54-2, Westchester, Rockland, Orange, Ulster, Greene, Albany, Schenectady, Montgomery, Herkimer, Oneida, Madison, Onondaga, Cayuga, Seneca, Ontario, Monroe, Genesee and Erie Counties, $320,000; furnishing, installing roadside delineators, New York State Thruway-Hudson-Catskill and Mohawk Sects., Contr. T.T.S. 54-2, Rockland, Orange, Ulster, Greene, Albany, Schenectady, Montgomery, Herkimer, Madison, Oneida Counties, $145,000; 36,000 ft. cattle fencing, 6.82 mi. New York State Thruway-Mohawk Sect. Subs. 1, 2, 3, 4 and 5, Contr. No. M.T. 54-6, Madison and Oneida Counties, $32,000. Plans deposit $10 each; adv. ENR 9/16.

PENNSYLVANIA — BA 9/30 — Pennsylvania Turnpike Comn., 11 N. 4th St., Harrisburg,

Montgomery Co.—constr. 4.9 mi. Sect. 35-E, northwestern exten. of Pennsylvania Turnpike, Franconia and Salford Twps. Plans deposit $50. R. B. Stone, c/o owner, engr.

† **N. J., Oceanville**—REFUGE—BA 10/4—Regional Director Fish & Wildlife Service, 59 Temple Pl., Boston 11, Mass., Brigantine National Wildlife Refuge, Inv. FW5-1998.

New York—PIER DEMOLITIONS, etc.—BA 10/19—At office Chief Engineer, Port of New York Auth., 111 Eighth Ave., New York, Zone 11, Contr. LT-160.033, demolition of Pier 78 and incid. constr. at foot of W. 38 St. Plans deposit $30. CD 1/18.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

BIDS ASKED—BUILDINGS

D. C., Wash.—PARKING GARAGE—BA 9/21—Goldname Assoc., Tower Bldg., 5 story, 2 bsmnt. parking garage, 11 and F Sts. N.W. $550,000. W. F. Silliman, 28 S. 18 St., Phila., Pa., archt. CD 8/6.

Pa., Sonestown—SCHOOL—BA 9/23—State Public School Bldg. Auth., 101 S. 25 St., Harrisburg, secondary school addn. for Sullivan Highland Joint School Dist. Plans deposit $35. Clarence Wagner, 312 Lycoming St., Williamsport, archt.

SOON LETS CONTRACT—BUILDINGS

▲ **D. C., Wash.**—SHRINE—Trustees of the Shrine of Immaculate Conception, c/o Most Rev. Richard J. Cushing, DD, 1 Lake St., Brighton, Mass., soon lets contract, stone, masonry shrine on Catholic University of America Grounds. $12,000,000. Maginnis & Walsh, 126 Newbury St., Boston, Mass., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Triborough Bridge & Tunnel Auth., Administrative Bldg., Randall's Island, New York, Zone 35,

Tully & DiNapoli, Inc., 127-50 Northern Blvd., Corona, N. Y. LB $2,799,270, grade separation structure, Contr. HE-1, Horace Harding Expressway at Queens Blvd., Queens Co. Bids Sept. 1. CD 8/9.

▲† **Reid Contg. Co., Inc.**, Box 215, Woodbridge, N. J., LB $1,629,361, airfield paving, incl. earthwork, drainage, c. conc. and bit. paving; jet fuel bulk storage facilities, incl. storage facilities, utilities, pump house, paving, Stewart Air Force Base, Serial No. ENG-30-075-55-17, NEWBURGH, N. Y. U. S. Eng., 80 Lafayette St., New York, N. Y. Bids Sept. 2. CD 8/23.

▲† **Peter Reiss Contg. Co., Inc.**, 105 Court St., Brooklyn, N. Y., LB $170,000, Schedule 1;

Roberts & Schaefer Co., 130 N. Wells St., Chicago, Ill. LB $1,110,273, Schedule 2, for sewage disposal plant, WEST POINT, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Sept. 1. CD 7/23.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,

Franklin Contg. Co., 12 Central Ave., Newark, N. J., LB, $799,894, partial repaving 7.97 mi. U. S. Route 22, Proj. F-178 (11), Essex, Union and Somerset Counties. Bids Aug. 31. CD 8/13.

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Sam Braen's Sons, 662 Goffle Rd., Hawthorne, N. J. CA, $1,281,837, 2.053 mi. Palisades Interstate Parkway from Station 407 plus 00 to Station 516 plus 66, Alpine, Bergen Co. Bids Aug. 24. CD 8/30, under LB.

Baylor Constr. Co., 210 E. 40 St., New York, N. Y., CA, $338,100, Contract A, general construction sewage treatment works addns., alterations, MORRISTOWN, N. J. Town, Town Hall, Morristown, N. J. Bids Aug. 23. CD 7/21.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Brann & Stewart, 771 Suburban Station Bldg., Phila. 3, Pa., CA $1,614,718, constr. 1.03 mi. State Rte. 100, incl. two plate girder and one I-beam bridges, West Whiteland Twp., Chester Co. Bids Aug. 27. CD 8/31, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

N. B. Putnam Co., 849 Main St., Honesdale, Pa., CA $517,275, constr. 8.46 mi. crushed aggregate base with bit. surf. 18 ft. wide, and five asph. coated metal plate culverts; widen and overlay existing pavement with crushed aggregate base and bit. surf. T.R. 670 from Honesdale northwest through Bethany, Honesdale and Bethany Boros, Texas, Dyberry and Mount Pleasant Twps., Wayne Co. Bids Aug. 27. CD 9/1, under LB.

Sanctis Constr., Inc., 410 Marlow St., Pittsburgh 20, Pa., wharf pavement and slope treatment at Point Park, PITTSBURGH, PA. State Dpt. Property & Supplies, 319 N. Front St., Harrisburg, Pa. Bids Aug. 4, awarded Aug. 30. CD 8/11.

† **Merritt-Chapman & Scott Corp.**, 260 Madison Ave., New York, N. Y., CA $64,309, constr. buildings, utility sys. and site imprvs. for Signal Corps Depot, TOBYHANNA, PA. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. CD 1/31/51, under Public Buildings.

Carl E. Widell & Son, Merchantville, N. J., CA, $104,707, sewage pumping stations, Newport, WILMINGTON, DEL. New Castle Co., Public Bldg., 11 and King Sts., Wilmington, Del. Bids Aug. 31. CD 8/11.

BUILDINGS

LOW BIDS AND CONTRACTS

Babylon Beach Lawns Homes, c/o Albert B. Meklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. $360,000. 30 HOUSES, tract on Fire Island Ave. south of Montauk Hy., BABYLON, N. Y.

Miracle Homes, c/o Max Rosenfield, archt., 89-31 161st St., Jamacja, N. Y. Owner Builds. Approx. $450,000.

(Continued on page 75)

CONSISTENT PERFORMANCE

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HENDRIX MANUFACTURING CO., Inc.

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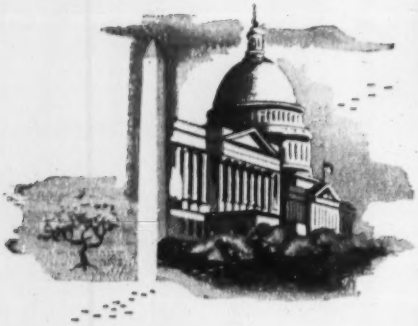
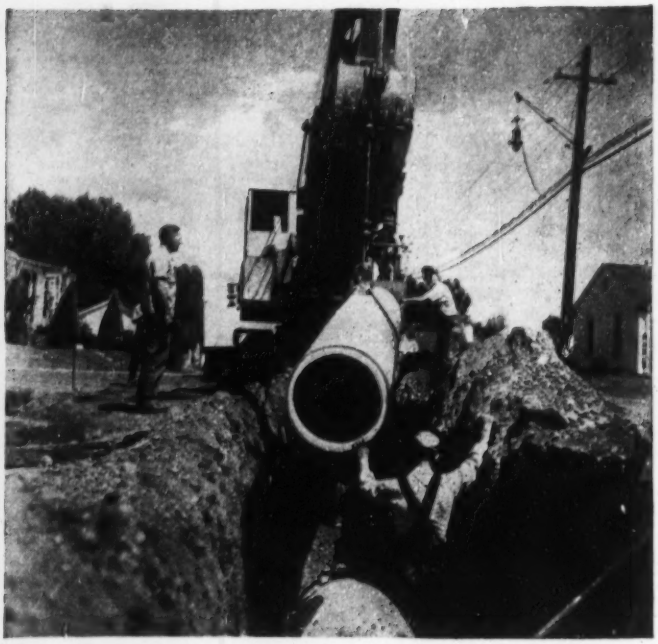
PREFERS

Concrete Pressure Pipe





The District of Columbia, home of the Nation's capitol, recognizes the advantages of concrete pressure pipe. From 1925 to the present, over 175,000 feet of concrete pressure pipe have been installed in this congested 69 square mile area. Pipe diameters range from 20″ to 78″, with heads from 70 up to 450 feet. A substantial part of this footage is in use in the Washington, D. C. distribution system.

Washington engineers consider economy and length of service of primary importance when specifying water pipe . . . also, high carrying capacity, and ease of installation. Because concrete pressure pipe meets these and other exacting requirements, it has been selected time and again for new supply mains and extensions to the distribution lines.

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Member companies are equipped to manufacture and furnish concrete pressure pipe in accordance with established national specifications and standards.

Concrete PRESSURE Pipe

WATER FOR GENERATIONS TO COME

AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION
228 North LaSalle Street
Chicago 1, Illinois

(Continued from page 72)

30 HOUSES, tract at 203 St. and Northern Blvd., BAYSIDE, N. Y.

▲ **Planet Constr. Co.**, 11 W. 42 St., New York, N. Y. LB $1,327,000. PUBLIC SCHOOL 59, BROOKLYN, N. Y. Bd. Educ. Bureau Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Aug. 3. CD 7/1.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y. CA Approx. $350,000. brick, stone STORE, BROOKLYN, N. Y. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y.

Mill Lane Park Homes, c/o Albert B. Meklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. $300,000. 15 HOUSES, Mill Lane and New York Ave., HUNTINGTON, N. Y.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y. CA Approx. $350,000. brick, stone STORE, MOUNT KISCO, N. Y. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y.

Lord Anthony Homes, c/o Albert B. Meklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. $700,000. 40 HOUSES, Seneca St., west of Sunset Rd., MASSAPEQUA, N. Y.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y. CA Approx. $350,000. brick, stone STORE, PATCHOGUE, N. Y. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y. CA Approx. $350,000. brick, stone STORE, RIVERHEAD, N. Y. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y. CD 1/15/53.

▲ **Old Oaks Homes**, c/o Kern Realty, 124-26 Queens Blvd., Kew Gardens, N. Y. Owner Builds. $1,800,000. 75 HOUSES, 25-acre tract Valley Rd. and Hillside Lane, SYOSSET, N. Y.

Dygert Constr. Co., 149 Reed Ave., Syracuse, N. Y. CA Approx. $550,000. 3 story Nelligan Hall DORMITORY, SYRACUSE, N. Y. Le Moyne College, Le Moyne Heights, Syracuse, N. Y. Bids Aug. 26. CD 8/11.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y., CA, $350,000, brick, stone STORE, CLIFTON, N. J. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y.

† **Glenwal Co.**, Box 206, Rochelle Park, N. J. LB, $746,800, POWDER PLANT, Picatinny Arsenal, DOVER, N. J. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Aug. 26. CD 7/15.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y., CA, $350,000, brick, stone STORE, HACKENSACK, N. J. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y.

Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y., CA, $350,000, brick, stone STORE, LONG BRANCH, N. J. Safeway Stores, Inc., c/o Bramwell Constr. Co. Div., 305 E. 46 St., New York, N. Y.

Isaac Degenaars, 231 Greenwood Ave., Wortendyke, N. J. LB, $349,469, CITY HALL, PASSAIC, N. J. City Comrs., City Hall, Passaic, N. J. Bids Aug. 10. CD 7/7.

▲ **Aragona Constr. Co.**, 5510 Jackson St., West New York, N. J., LB $1,677,700, Senior High SCHOOL, PASSAIC, N. J. Bd. Educ., City Hall, Paulison and Passaic Aves., Passaic, N. J. Bids Aug. 10. CD 7/9.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va.**, Chincoteague—BUILDINGS RELOCATION—BA 9/21—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, relocating buildings, Naval Auxiliary Air Station, NOY 84427, Spec. 42768 S/F. Plans deposit $10.

Tenn., Bolivar—BA 9/23—State of Tenn., Nashville, sewers, water lines, etc., Western State Hospital. $150,000. Plans deposit $25. Burns & Thorpe, 428 Falls Bldg., Memphis, engrs.

Ala., Florence—BA 9/28—City, City Hall, sewage treatment plant, $250,000. Polk, Powell & Hendon, Stallings Bldg., Birmingham, engrs.

Ky., Hazard—BA 10/5—City Comrs., Hazard, 2 m.g. water filtration plant. Plans deposit $50. H. A. Spalding, Hazard, engr.

BIDS ASKED—BUILDINGS

▲ **Tenn.**, Knoxville—STORE—BA 9/23—Rich's, Inc., Forsyth St., Atlanta, Ga., department store. $5,000,000. Plans deposit $50. Stevens & Wilkinson, 157 Luckie St. N.W., Atlanta, Ga., archts. CD 2/26.

Fla., Sarasota—HOSPITAL—BA 9/24—Sarasota Co. Court House, 4th and 5th floors hospital addn. $900,000. Kannenberg & Hanebuth, 1422 2 St., archts. CD 8/31.

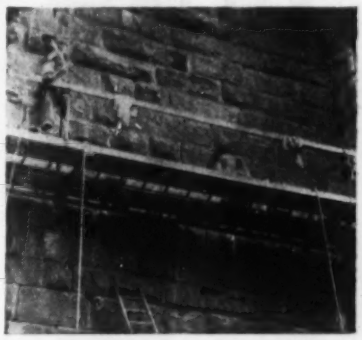
La., Bogalusa—Y.M.C.A. BLDG.—BA 9/24—Young Men's Christian Asso., Bogalusa, 1 story, concrete Y.M.C.A. bldg. $321,000. Plans deposit $25. Freret & Wolf, 630 Gravier St., New Orleans, archts. CD 3/27/52.

Ga., Columbus—BANK—BA 9/29—First National Bank, 1048 Broadway, bank. $500,000. E. Oren Smith & James J. W. Biggers, Box 268, archts. CD 9/7.

Fla., Sarasota—JAIL—BA 10/4—Sarasota Co. Court House, jail. $325,000. James G. Rogers II, Winter Park, archt. CD 7/1/53.

▲ **Ga.**, Cartersville—SCHOOLS—BA 10/5—City School Bd., Cartersville, 5 schools. $1,000,000. Albany Architects & Engineers, 200½ Broad Ave., Albany, archts.

▲ **Tenn.**, Chattanooga—HOUSING—BA 10/6—Chattanooga Housing Auth., 1914 McCallie Ave., 206-hous-



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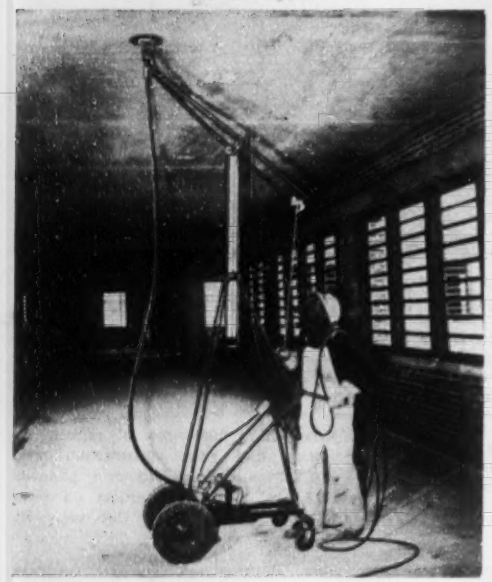
RUBBING CEILINGS?



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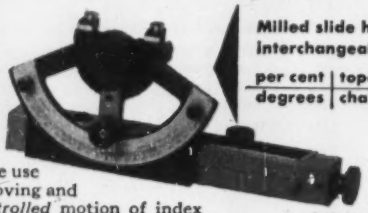

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per cent	topographic
degrees	chainage corrections

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4445 N. E. GLISAN STREET • PORTLAND 13, OREGON

ing units addn., to Spencer J. McCallie Homes, $2,417,000. CD 1/16/53.

▲ **Fla., Tallahassee** — LIBRARY — BA 10/13 — Florida State Bd. Control, Education Bldg., library, Florida State University. $2,000,000. CD 7/30/53.

Ga., Danielsville—SCHOOL—BA 10/14—Madison Co. Bd. Educ., Danielsville, high school. $500,000. Plans deposit $50. CD 9/30/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

SEWAGE TREATMENT PLANT

▲ **James McHugh Constr. Co.**, 6449 S. So. Park St., Chicago, Ill., LB **$3,267,239**, Div. 1;
Worthington Corp., Woodward Bldg., Wash., D. C., LB $91,081, Div. 2;
Komline Sanderson Engineering Corp., Pepack, N. J., LB $90,722, Div. 3;
Central Armature Works, 625 "D" St. N. W., Wash., D. C., LB $113,105, Div. 4;
received no bids Sept. 1, for Div. 5;

PUMPING STATION

Blackwell Engr. Co., Warrenton, Va. LB **$211,244.**

INTERCEPTING AND TRUNK SEWERS

Wright Contg. Co., 504 25th Ave., Columbus, Ga., LB **$756,136**, Div. A; Potomac Interceptor.
Leo Butler Co., 9217 51st Ave., College Park, Md., LB **$543,320**, Div. B; Commonwealth Interceptor.
Central Contg. Corp. of America, Oshkosh, Wis., LB **$508,776**, Div. C; LB **$307,186**, Div. D Holmes Run Trunk sewer. ALEXANDRIA, VA. Sanitation Auth., 113 N. Asaph St., Alexandria, Va. Bids Sept. 1. CD 7/23.

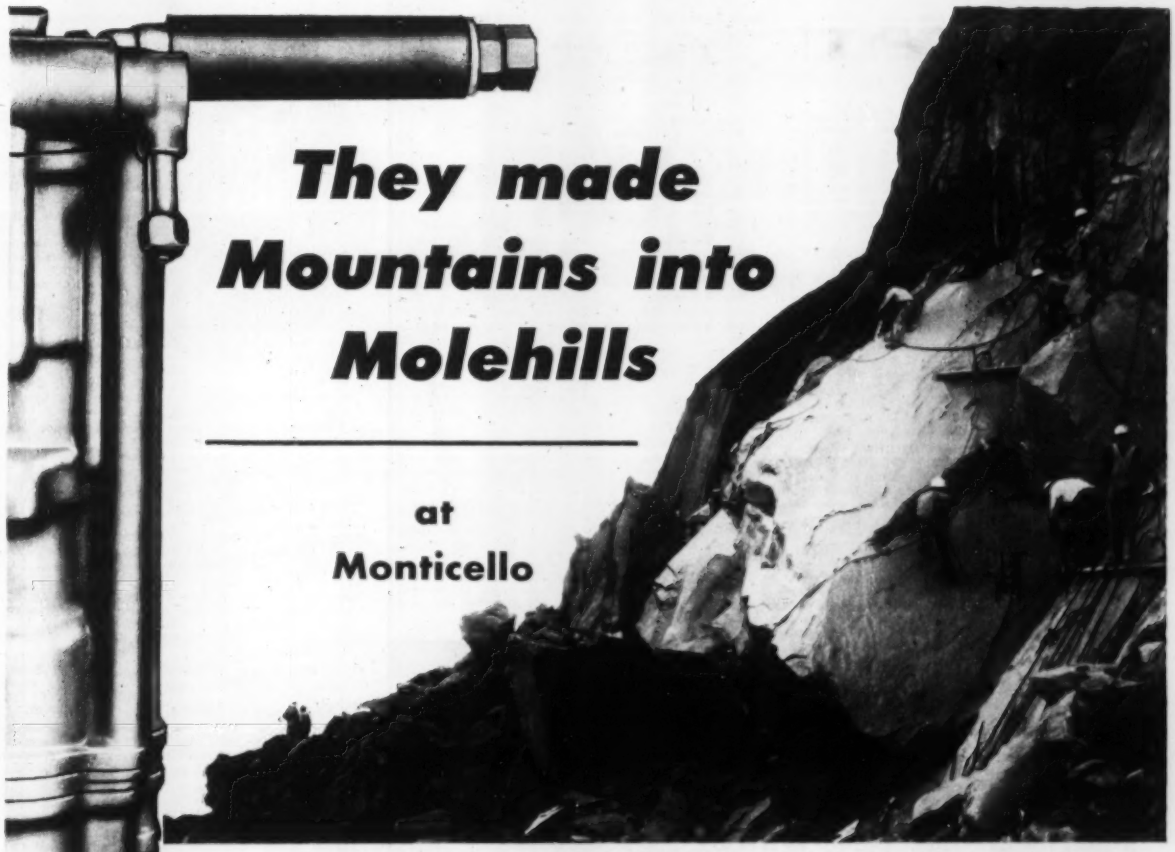
WEST VIRGINIA—State Road Comn., Charleston,
J. M. Francesca & Co., Fayetteville, W. Va., LB, **$100,487** bridge over south fork of Lee Creek W. Va. 2, Wood Co.; LB, **$132,142** Mill Creek Overhead bridge U. S. 21 overpass over C. & O. Ry., Fayette Co.;
Walter C. Stonestreet, P. O. Box 1737, Fairmont, W. Va., LB, **$63,086**, Shepard Bridge on U. S. 21, Jackson Co.;
Anderson's Inc., 1500 Penna. Ave., Charleston, W. Va. and **Howard Price & Co.**, 2829 Roseneath Rd., Huntington, W. Va., LB, **$145,558.** Island Creek Overhead approaches W. Va. 10, Logan Co. Bids Aug. 31. CD 8/26.

WEST VIRGINIA—State Road Comn., Charleston,
John G. Witten, Sardis, O., LB, **$94,459** surf. 14 mi. W. Va. 2, Jackson and Mason Counties. Bids Aug. 31.
Daniel Constr. Co., P. O. Box 2286, Greenville, S. C. CA Approx. $200,000. television station, GREENVILLE, S. C. Station WFBC-TV, Poinsett Hotel, Greenville, S. C.

FLORIDA—State Road Dpt., Tallahassee,
H. E. Wolfe Constr. Co., St. Augustine, Fla., CA, **$567,502**, 6.701 mi. State Road No. 10, F. A. Proj. F 006-2 (8), Job 5201-206, Holmes Co. Bids, July 8, awarded Aug. 10. CD 7/13, under LB.

▲ **FLORIDA**—State Road Dpt., Tallahassee,
Cone Bros. Constr. Co., Box 1301, Tampa, Fla., LB, $358,320 imprv. 2.469 mi. State Road 600, FG-997-1 (5) and F-007-1 (6), Hillsborough Co.; LB **$215,458.** 4.542 mi. State Road 78, Proj. S-124 (3), Lee Co.;
Jas. H. Craggs Constr. Co., Ocala, Fla., LB, **$221,936**, 8.434 mi. State Road S-241, Jobs 2961-151 and 3955-150, Columbia and Union Counties; LB **$324,166**, 6.171 mi. State Road 228, S-388 (1), Job 2707-201 Baker Co.;
C. T. Stockton, Inc., 660 N.W. 54 St., Miami 37, Fla., LB **$127,868**, 6.133 mi. State Road 706, Job 8902-103, Martin Co.; LB **$113,976**, 3.503 mi. N.E. 6 Ave. in Miami, Job 8764-150, Dade Co.;
L. L. Hall Constr. Co., Orange Park, Fla., LB, $93,429 2.306 mi. State Road S-237, Job 2856-175, Bradford Co.; LB, **$117,918**, 3.612 mi. State Road S-100-A, Job 2857-175, Bradford Co.;
Handley Constr. Co., Pahokee, Fla., LB, **$169,870** 2.381 mi. State Road 15, F-035-1 (1), Job 8905-202, Martin Co.;
W. L. Cobb Constr. Co., Box 977, Tampa, Fla., LB, **$371,034** 11.894 mi. State Road 44, S-153 (2), Job 1807-203 Sumter Co.;
Noonan Constr. Co., Drawer 470, Pensacola, Fla., LB, **$159,020** 5.362 mi. State Road 95, Job 4806-104, Escambia Co.;
Campbell Paving Co., Box 1437, Clearwater, Fla., LB, **$75,727.** 6.64 mi. State Road S-583, Job 1456-150, Pasco Co.;
Marion Constr. Co., Ocala, Fla., LB, **$129,443** 6.75 mi. State Road S-314-A, Job 3655-150, Marion Co.;
Doyle Pope, Quincy, Fla., LB, **$94,405** 3 mi. State Road 392-A, Job 4617-105, Bay Co.;
Naranja Rock Co., Box 96, Naranja, Fla., LB **$86,621** 4.559 mi. Tallahassee Road, Job 8765-150, Dade Co.;
Brewer Co. of Florida, Inc., 3900 N.W. 21 St., Miami, Fla., LB, **$290,766**, 1.528 mi. N.W. 7 St. in Miami, Job 8758-151, Dade Co.;
Geo. G. Tapper Co., Port St. Joe, Fla., LB, **$87,886** 4.265 mi. roads and streets in Port St. Joe, Jobs 5153-150, 5154-151, 5155-151, 5155-152 and 5156-150, Gulf Co.;
Faulk & Coleman Constr. Co., Tallahassee, Fla., LB **$139,414** 6.964 mi. State Road S-85A, Job 5755-152, 5759-150, 5764-150, Okaloosa Co.;
A. F. Rich Constr. Co., Box 149, Tallahassee, Fla., LB, **$121,606**, 4.764 mi. State Road S-370, Job 4957-150, 4957-152, Franklin Co.;
Burton Walker Constr. Co., Plant City, Fla., LB, $253,818 1.626 mi. Job 2800-106, 2802-107, 2801-116, Bradford Co.;
R. H. Wright & Son, Box 781, Fort Lauderdale, Fla., LB, **$151,349** 2.791 mi. State Road 707, Job 8903-104, Martin Co. Bids Aug. 31. CD 8/20.

(Continued on page 78)



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W&D C 5209

JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS FOR OVER HALF A CENTURY

(Continued from page 76)

† **Reynolds & Smith, Inc.,** P.O. Box 1280, Lake Placid, Fla., CA, $347,555, Canal and Levee No. 15, Section 1, Central and Southern Florida Flood Control Proj. CIVENG-08-123-54-59, FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids July 29. CD 6/30.

▲† **Greenhut Constr. Co.,** 23 South "A" St., Pensacola, Fla., LB, $1,447,140 airborne system maintenance bldg., No. 08-603-55-1B, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Aug. 30. CD 7/23.

▲† **Empire Gas Eng. Co.,** 7 Baltimore Pl. N.W., Atlanta, Ga., CA, $1,176,083, aircraft fueling sys., Homestead Air Force Base, Inv. 55-4, HOMESTEAD, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Aug. 26. CD 8/31, under LB.

▲† **W. T. Price Dredging Corp.,** S.W. 27 St., Miami, Fla. and **Blythe Bros. Co.,** P. L. Box 989, Charlotte, N. C., CA, $3,043,368, airfield paving and railroad spur, Homestead Air Force Base, Inv. 55-2, HOMESTEAD, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Aug. 17. CD 9/2, under LB.

Chicago Bridge & Iron Co., 57 Forsyth St., Atlanta, Ga., CA, $61,700, 3 m.g. water tank, CULLMAN, ALA. City, City Hall, Cullman, Ala. CD 6/10/44.

S. A. Graham, Brundidge, Ala., CA, $79,458. grading, paving 9 mi. county road from Pine Level to Hy. 94, MONTGOMERY, ALA. Montgomery Co. Bd. Revenue, Court House, Montgomery, Ala. Bids Aug. 27.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

R. R. Dawson Bridge Co., Bloomfield, Ky., CA $724,802, Kentucky Turnpike Proj. No. 1, Contr. 5, constr. four 3-span and four 4-span continuous rein.-con. beam bridges, Bullitt Co. Bids Aug. 27. CD 8/31, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ruby Constr. Co., Madisonville, Ky., CA $1,227,034, Contr. 4A, constr. 6 bridges of three and four span continuous rein-con. beam constr., one bridge of single-span simple rein.-beam concrete constr. all supported by rein.-con. bents and abutments; Contr. 4B, constr. one five span built-up steel girder bridge (Bridge A-7) supported by rein.-con. piers and abutments. Hardin Co. Bids Aug. 20. CD 8/24, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Penker Constr. Co., 1030 Summer St., Cincinnati, O. LB $1,354,373, Proj. 1, Contr. 6, constr. 1 five span built-up steel girder bridge with rein.-con. bents and abutments. The substructure units are supported on steel H-beam piles, approx. Turnpike Centerline, Station 1397 plus 00; constr. 7 four span and 1 five span continuous rein.-con. T-beam type structures with rein.-con. bents and abutments, substructure units of all bridges will be supported by steel H-beam piles, precast concrete piles, cast-in-place concrete piles or spread footings on rock, following stations denote approx. locations of each bridge, C-2, 1427 plus 00, C-3 1540 plus 00, C-4 1677 plus 46, C-5 1790 plus 55, C-6 1862 plus 15, C-7 1957 plus 15, C-8 2019 plus 00, C-9 2042 plus 92. Bids Sept. 3. CD 8/17.

BUILDINGS

LOW BIDS AND CONTRACTS

Reinsch Constr. Corp., 4012 Columbia Pike, Arlington, Va., CA. Approx. $500,000. 60-unit APARTMENT, 3806-14 Columbia Pike, ARLINGTON, VA. Emerson G. Reinsch, 4012 Columbia Pike, Arlington, Va.

▲† **Blake Constr. Co.,** 33 "E" St. N.W., Wash., D. C. CA $3,738,000, constr. U. S. Army HOSPITAL, ENG-49-080-55-2 (2), FORT BELVOIR, VA. U. S. Eng., First and Douglas Sts. N.W., Wash., D. C. Bids Aug. 31, awarded Sept. 2. CD 8/31.

† **Howard Mitchel Co.,** 711 W. Main St., Richmond, Va. LB $432,824, Bid No. 1; LB $414,941, Bid No. 2; LB $397,000, Bid No. 3, constr. OBSERVATORY BLDGS. and RESIDENCES at Camp A.P. Hill for the Magnetic Observatory, FREDERICKSBURG, VA. General Services Admin., P. Buildings Service, General Services Bldg., F St. N.W., Wash., D. C. Bids Sept. 1. CD 8/10.

▲ **Southeastern Constr. Co.,** Box 727, Charleston 23, W. Va., CA, $5,800,000. 11 story OFFICE, CHARLESTON, W. VA. Columbia Gas System, United Fuel Co., 1033 Quarrier St., Charleston, W. Va. Douglas Orr, 111 Whitney Ave., New Haven, Conn., and Martens & Sons, 1503 Virginia St. E., Charleston, W. Va., archts. CD 6/10/53.

▲ **Merchant Constr. Co.,** Asheville, N. C. CA Approx. $1,000,000. RESEARCH BLDG., ENKA, N. C. American Enka Corp., Asheville, N. C. CD 4/22/52.

Craig-Roberson Constr. Co., 1610 Westminister Dr., Columbia, S. C. CA Approx. $400,000. Sect. 2, SHOPPING CENTER, CAYCE, S. C. Parkland Shopping Center, Hy. 21, Cayce, S. C.

Claussen-Webster, 1394 Gwinnett St., Augusta, Ga., CA Approx. $200,000. WAREHOUSE, CLEARWATER, S. C. Clearwater Finishing Co., Clearwater, S. C. CD 9/2.

York Co., Court House, Rock Hill, S. C., rejected bids July 20, COUNTY OFFICE BLDG., ROCK HILL, S. C.

Mann-Mobley Constr. Co., Fitzgerald, Ga., LB, $616,714 SCHOOLS, ABBEVILLE, GA. Wilcox Co. Bd. Educ., Abbeville, Ga. CD 9/30/52.

Hardin & Traver, 266 North Ave. N.W., Atlanta, Ga. CA $850,000. WAREHOUSE, ATLANTA, GA. Big Apple Stores, 533 Whitehall St., Atlanta, Ga. CD 2/9/51.

▲ **Austin Co.,** 16112 Euclid St., Cleveland, O., CA $1,500,000. OFFICE, ATLANTA, GA. USB-AM, FM & TV, Biltmore Hotel, Atlanta, Ga.

Williams Constr. Co., P.O. Box 1039, Columbus, Ga., CA, $500,000 SHOPPING CENTER, COLUMBUS, GA. Williams & Wilson, c/o contractor.

Coite Somers Co., Vidalia, Ga., CA, $989,600, SCHOOLS, LYONS, GA. Toombs Co. Bd. Educ., Lyons, Ga. Bids Aug. 24. CD 8/31, under LB.

▲ **Florida State Imprvt. Comn.,** Caldwell Bldg., Tallahassee, Fla., rejected bids Aug. 26, WARD BLDGS., State Hospital, ARCADIA, FLA. LB $1,333,204. CD 9/2, under LB.

Whaley Lumber Co., Troy, Ala., LB, $660,121 HIGH SCHOOL, ENTERPRISE, ALA. City, Enterprise, Ala. Bids Aug. 31. CD 8/25.

Andrew & Dawson, P.O. Box 1301, Montgomery, Ala., CA, $579,000. CHURCH, MONTGOMERY, ALA. First Baptist Church, 301 S. Perry St., Montgomery, Ala. CD 9/2, under LB.

▲ **Caldwell & McCann,** Box 477, Baton Rouge, La. LB $1,043,951. 1 story, brick tile RECEIVING BLDG., Southeast Louisiana Hospital, MANDEVILLE, LA. State, Div. Admin., State Capitol, Baton Rouge, La. Bids Aug. 31. CD 8/16.

Universal Constr. Co., Skerrett Bldg., Kansas City, Mo. CA. Approx. $500,000. railroad SHOPS, SHREVEPORT, LA. Kansas City Southern Ry. Co., E. F. Salisbury, ch. engr., Kansas City Southern Blvd., Kansas City 5, Mo.

▲ **Fluor Corp., Ltd.,** 45 Rockefeller Plaza, New York, N. Y. CA Approx. $3,000,000. chemical PLANT and railroad spur, incl. water supply and fire protection, near BURNSIDE, KY. J. N. Pick & Assoc., Bell House, Lexington, Ky.

Martindale Bros., Murfreesboro, Tenn., CA $578,500. HIGH SCHOOL, ELIZABETHTOWN, KY. Bd. Educ., Elizabethtown, Ky. Bids Aug. 27, awarded Aug. 30. CD 9/2, under LB.

Brownlee-Kesterson Constr. Co., Hauser Rd., Knoxville, Tenn., LB $358,000. HOSPITAL, ONEIDA, TENN. Scott Co., Oneida, Tenn. Lindsay & Maples, Daylight Bldg., Knoxville, Tenn., archts. Bids Aug. 31.

† **Rust Eng. Co.,** Exchange Bldg., Birmingham, Ala. LB $405,994, SUPERSONIC COMPRESSOR STRUCTURES, Arnold Engineering Development Center, TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. CD 11/14/49.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., Cincinnati—BA 9/21—City, City Hall, West branch Ohio River Interceptor from Neave St. to Delhi Ave. Plans deposit $5. Extended date. T. J. Montgomery, city engr. CD 8/16

† **Illinois**—STORAGE STRUCTURES—BA 9/22—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, 3 underground missile storage structures, types B and C, acid storage shed, generator, missile test and assembly bldg., concrete pads, exterior utilities, drainage, paving, grading, roads, parking spaces, walks, etc., Special AAA and related work at Site C-49, Cook Co. Serial No. ENG-11-032-55-13.

O., Lima — TURBINE-DIESEL ENGINE PIPING — BA 9/29—State Dpt. Mental Hygiene, John D. Porterfield, dir., 220 Parsons Ave., Columbus, turbine and diesel engine piping, Lima State Hospital.

† **Illinois**—BA 10/1—U. S. Eng., 420 Locust St., St. Louis 2, Mo., altering Upper Miter Gate Sill, Main Lock, Twin Locks No. 26, Mississippi River, Alton, Inv. No. CIVENG-23-065-55-15. CD 5/28/52.

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—WAREHOUSE, OFFICE—BA 9/20—Aldens, Inc., 1417 W. Paulina St., 1 and 2 story, 650,000 sq. ft. Mail Order Warehouse and office, Roosevelt Rd. and Cicero, $5,000,000. A. Epstein & Sons Co., 2011 Pershing Rd., Chicago, Zone 9, archt CD 7/15.

O., Stow—SCHOOL—BA 9/29—Bd. Educ., F. M. Burgess, clk., High School, Stow, Proj. A, grade school, Graham Rd., Proj. B, grade school, North River Rd. Plans deposit $20. W. B Huff, 1050 N. Main St., Akron, Zone 10, archt. CD 5/12.

O., Ashland—DORMITORY—BA 9/30—Ashland College, Dr. Glenn L. Clayton, pres., Ashland, 4 story men's dormitory, southeast corner of campus. Plans deposit $25. W. Ray Yount & John Sullivan, Jr., 419 Third Natl. Bldg., Dayton, archts.-engrs. CD 8/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Howe Constr. Co., 215 Monroe Falls St., Cuyahoga Falls, O., CA $782,042, settling tanks for sewage treatment plant at Botzum Sewage Plant;

H. P. Cahill Plumbing Co., 14 S. Canal St., Akron, O. CA $94,301, plumbing and heating work for sewage treatment plant, AKRON, O. City, City Hall, Akron, O. Bids July 29. CD 7/1.

City, Leo Walter, Service Dir., City Hall, Akron, O. rejected bids July 29, for buildings for sewage treatment plant, AKRON, O. Est. $976,000. CD 7/1.

Ferro Concrete Constr. Co., 203 W. 3 St., Cincinnati, O. LB $152,645 for glazed brick interior wall, LB $149,445, for concrete block interior walls, of incinerator bldg., driveways, retaining walls on Glendale-Milford Rd., Milford, CINCINNATI, O. Hamilton Co., Court House, Cincinnati, O. Alfred LeFeber & Assoc., 2933 Woodburn St., Cincinnati, O., engrs. George Lemmel, c/o owner, co. engr. Bids Aug. 30.

George Sheaf & Co., 449 Neilston St., Columbus, O., CA $910,264, intercepting sewers, TIFFIN, O. City, Tiffin, O. Bids Aug. 18, awarded Aug. 31. CD 9/1, under LB.

Comrs. Lucas Co., Court House, Toledo, O., rejected bids Aug. 16, paving Bowen Rd., approx. 2,300 ft. and nine intersecting streets, 1.87 mi. in Washington Twp. and 0.4 mi. in city of TOLEDO, O. LB $204,822, est. $195,833. CD 8/24, under LB.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis,

Rieth Riley Constr. Co., Goshen, Ind., LB, $3,365,878 Contracts 24 and 25, 7 4/10 mi. St. Joseph Co.; Completion date June 30, 1956;

S. J. Groves & Sons, 505 N. Mac Arthur St., Springfield, Ill., LB, $3,488,014 Contracts 24 and 25, 7 4/10 mi. St. Joseph Co., Completion date October 30, 1955. Bids Sept. 1. CD 8/12.

▲† **Ring Constr. Corp.,** 721 Metropolitan Bldg., Minneapolis, Minn., LB, $6,356,470 on (A) permanent type 250-500 bed, 5 story, masonry, concrete hospital; LB $209,000 on (B) dental clinic and related work, Serial No. 11032-5505, SCOTT AIR FORCE BASE, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Aug. 27.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Jos. D. Bonness, Inc., 1409 N. 23 St., Milwaukee 8, Wis., LB, $114,667, Contract 1, Structure B-40-651, Proj. U 5709 (4), Milwaukee Co.;

I. H. Pertzsch, Onalaska, Wis., LB, $169,727, Contract 1, structures, Proj. T 08-1 (11), Crawford Co. Bids Aug. 31. CD 8/12.

WISCONSIN—State Hy. Comn., State Hy. Office Bldg., Madison,

Rock Road Constr. Co., 5711 Winnequah Rd., Madison, Wis., LB, $271,734, Contract 1, imprv. 6.865 mi. Proj. T 064-1 (13), Walworth Co.;

Bossell, Van Vechten & Chapman, Baraboo, Wis., LB $170,545, Contract 2, 3.542 mi. Proj. T 08-1 (11), Crawford Co.;

Mathy Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis. LB, $75,489. Contract 1 and 2, 5.254 mi. Proj. T 01-3 (5) and S 0489 (6), Adams and Juneau Counties. Bids Aug. 31. CD 8/12.

Dunbar & Sullivan Dredging Co., 2312 Buhl Bldg., Detroit, Mich. CA $303,500. dredging, deepening, wid'n., Connors Creek, Contr. PW-2130, DETROIT, MICH City, Glenn C. Richards, comr., Guardian Bldg., Detroit, Mich. Bids July 13. CD 6/23.

Herbert M. Pranger, 12055 Mettetal St., East Detroit, Mich. CA $130,522. repair mains, replace 46,405 ft. copper tubing, NANKIN, MICH. Nankin Twp., Floyd M. Noel, clk., Nankin, Mich. Bids Aug. 12.

Tri-County Constr. Co., 11724 Wormer Ave., Detroit 28, Mich., CA, $64,880, storm and sanitary sewers and water mains, RIVERVIEW, MICH. Village, Riverview, Mich. Bids Aug. 2.

BUILDINGS

LOW BIDS AND CONTRACTS

C. & H. Constr. Co., 7042 Noble Ct., Cincinnati, O. Owner Builds. $320,000. 16 one and one-half story, bsmnt., 34x35 ft. brick, frame units HOUSING, Kellway Ct. off Banning Rd., CINCINNATI, O. James S. Wald & Assocs., 1721 Dallas Ave., Cincinnati, O., engrs. Awarded Sept. 3.

▲ **H. D. Long & Son,** 6246 Crestview Pl., Cincinnati, O. Owner Builds. $1,500,000. 45 one-family HOMES in Wasigo Trails off Beechmont Ave., CINCINNATI, O. Ayers & Graf, 527 Linton St., Cincinnati, O., engrs. Awarded Aug. 30.

Wood Realty Co., 8830 Hamilton Ave., Cincinnati, O. Owner Builds. $600,000. 20 one story, bsmnt., brick HOMES, off Hollywood Ave., CINCINNATI, O. Luigi Marioni, 1518 Beacon St., Cincinnati, O., archt. Ayers & Graf, 527 Linton St., Cincinnati, O., engrs. Awarded Sept. 1.

E. Elford & Son, Inc., 555 S. Front St., Columbus, O. CA Approx. $300,000. 2 story brick, stone OFFICES, parking for 100 cars, COLUMBUS, O. Columbus Surgical Center, Inc., c/o Arthur J. Dupre, archt., 1373 Grandview Ave., Columbus, O.

Bachelier & Son, c/o W. A. Kemp, engr., 2259 Beechmont Ave., Cincinnati, O. Owner Builds. $350,000. 25 one-family brick, frame, bsmnt. HOMES, Lenkenann Rd., near FORRESTVILLE, O.

The Blake Company, 5640 Lieber Rd., Indianapolis, Ind. Owner Builds. $350,000. HOMES in Briargate Subdivision, INDIANAPOLIS, IND.

Gardner White, Noblesville, Ind., Owner Builds. $300,000 or more, HOMES in Rolling Fields addn. at north edge of city, NOBLESVILLE, IND.

W. H. Nicholas, 54 St. at Monon R.R., Indianapolis, Ind. Owner Builds, $300,000. 30 HOMES, NORA, IND.

J. J. Altman & Co., 1764½ State St., East St. Louis, Ill., CA, $750,000. SHOPPING CENTER on 7.5 acre tract in 7800 block St. Clair Ave., incl. supermarket, drug store, hardware store, medical center, cleaning and launderette establishment, etc., parking area EAST ST. LOUIS, ILL. Park 'N' Shop Supermarket, c/o Joseph Tzinberg, 7800 St. Clair Ave., East St. Louis, Ill. J. J. Altman & Co., 1764½ State St., East St. Louis, archts. CD 10/20.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Tex., Dallas—BA 9/23—Dallas Co., Court House, road imprvs. and small bridge, Rose Hill and Rowlett Rd. and Rowlett Rd. Bridge. $600,000. Plans deposit $25. Koch & Fowler, 3900 Lemmon St., engrs. CD 2/27/50.

† **Tex., Waco**—SHOP—BA 9/23—U. S. Eng., 100 W. Vickery St., Fort Worth, electronics maintenance shop, James Connelly Air Force Base, Inv. No. ENG-41-443-55-8. H. H. Roberts & Assocs., Medical Arts Bldg., Waco, archts.-engrs. CD 8/6/51.

(Continued on page 81)

Reports from Users

TEXAS ALUMINUM PLANT

"We compacted 380,000 cu. yds. of clay fill to 95% with twenty Rammers in six months. No other equipment would produce required compaction and only the Barco Rammer permitted us to finish the job on schedule."—*Consolidated Western Steel Division, Port Lavaca, Texas.*

CALIFORNIA PROJECT

"We had an occasion to compare the Rammer along with two other machines and it was surprising how much more material the Barco Rammer would handle."—*Westway Excavating Co., West Los Angeles, Calif.*

MIDWEST WATER LINE

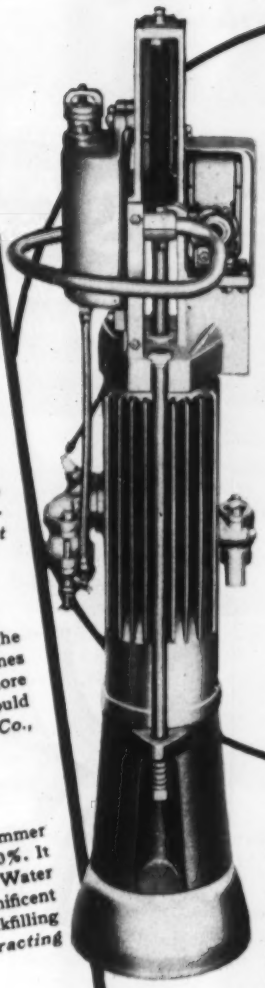
"The Barco Portable Gasoline Rammer has fulfilled our expectations 100%. It is now in use on a 32,000 foot Water Line Project and is doing a magnificent job in keeping up with our backfilling requirements."—*Jones Contracting Co., Detroit, Mich.*

HOUSING PROJECTS

"Soil compaction with the Barco Rammer has been the key to earlier completions and lower costs for us."—*Paul Schleicher & Sons, Gary, Ind.*

OHIO TURNPIKE

"Exceptional time and labor is saved in the speed of the Barco Rammer with comparison to our previous method . . . We found it difficult to meet the rigid specifications required by the Ohio Turnpike Commission until we instituted the Barco Rammer, and can recommend it very highly to any organization having to meet specifications."—*Angell Construction Co., East Lansing, Mich.*



This photograph shows a Barco Rammer working on the Trenton Freeway in New Jersey.

WHEN YOU'RE UP AGAINST A TIGHT SCHEDULE—

ONE of the most important advantages users get with Barco Rammers for *soil compaction* is ability to handle big jobs in minimum time. When time is at a premium, BARCO PERFORMANCE PAYS DIVIDENDS!

Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE. The Barco Rammer is a completely self-contained unit; no auxiliary or extra equipment is required. On area tamping, where specifications call for 95% to 97.5% (modified Proctor) compaction, one man can average 20 to 30 cubic yards of fill per hour, day after day.

If you are not already using the Barco Rammer for soil compaction work, find out about it now! *Worldwide Sales and Service.* BARCO MANUFACTURING COMPANY, 514K Hough St., Barrington, Ill.

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ZEISS Ni2
SELF-LEVELING LEVEL

This amazing new instrument cuts leveling time and costs in half. It sets a line of sight precisely level *automatically*. A remarkable new invention, the Compensator, built into the telescope levels the line of sight for you in a matter of moments. It performs any kind of leveling, from rough cross sectioning to first order work. Bench-mark leveling, using two rods, is almost twice as fast with the Ni2 as with an ordinary level. Cross-sectioning with many sights from one set-up is even faster. Accurate up to ± 0.02 ft. per mile, the Ni2 is as rugged as its appearance suggests.

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(Continued from page 78)

Ia., Treynor—BA 9/28—City, WW plant and sys. Imprvs. $40,000. Henningson, Durham & Richardson, 2962 Harney St., Omaha, Neb., engrs.

† Tex., Houston—USAR CENTER—BA About 9/29—U. S. Eng., P.O. Box 1229, Galveston, altering inside the USAR armory bldg. and vehicle storage bldg., Inv. No. ENG-41-243-55-22. Under $100,000.

† Tex., Big Spring—HANGAR—BA About 10/13—U. S. Eng., P.O. Box 1538, Albuquerque, N. M., 153x236 ft. maintenance hangar with shops, approx. 3,200 sq. yd. concrete paving, 5,000 sq. yd. bit. paving, utilities, incl. sewer, water, gas and electrical, Webb Air Force Base, Serial No. ENG-29-005-55-26. CD 8/8/51.

BIDS ASKED—BUILDINGS

† N. M., Las Cruces—INSTRUMENTATION STRUCTURES—BA 9/22—U. S. Eng., Box 1538, Albuquerque, terminal area instrumentation structures, incl. structures at 50 different sites, rein.-con. type, etc., White Sands Proving Ground, Serial No. ENG-29-005-55-20. $750,000-$1,250,000. Kenneth S. Clark, 118 Otero St., Santa Fe, engr.-archt. CD 8/28/51.

Tex., Jasper—SCHOOL—BA 9/28—Jasper Independent School Dist., Jasper, 33,000 sq. ft. elementary school and existing Negro School addn. $425,000. George L. Ingram, 690 Hazel St., Beaumont, archt. Michael Barr, 3410 N. Anderson St., Beaumont, H. L. Ingram, Beaumont, and B. J. Broadus, Beaumont, engrs. CD 3/23.

▲ Okla., Oklahoma City—CHURCH—BA 10/4—First Christian Church, 10 and Robinson St., sanctuary and educational bldg., N.W. 36 and Walker Sts. $1,500,000. Coston & Frankfurt, 323 E. Madison St., archts. CD 7/13/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Fairbanks, Morse & Co., 600 S. Michigan St., Chicago, Ill., LB, $61,285, Sect. A, generating unit, STRAWBERRY POINT, IA. City, Strawberry Point, Ia. Bids Aug. 17. CD 7/29.

† U. S. Eng., 1709 Jackson St., Omaha, Neb. rejected bids Aug. 5, regulating gate structure, Fort Randall Reservoir Proj. near Pickstown, Inv. 25-066-54-186, SOUTH DAKOTA. LB $339,777. CD 8/11, under LB.

Roulier Constr. Co., Colby, Kan., CA Approx. $75,000. curbs, guttering, surf. city streets, COLBY, KAN. City, Colby, Kan., George McKee, Jr., Colby, Kan., engr.

Hunter Constr. Co., Hays, Kan., CA $70,385, est. $82,987 street imprvs., RUSSELL, KAN. City, Russell, Kan. Bids Aug. 10. CD 8/3.

▲† Imperial Paving Co., 700 E. Grand Ave., Oklahoma City, Okla., CA $2,519,141. airfield imprvs. Tinker Air Force Base, Inv. No. ENG-34-066-55-5, OKLAHOMA CITY, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Aug. 26. CD 8/31, under LB.

Wharton County Electric Co-operative, Wharton, Tex. Force Account. $100,000. some rural distr. lines, sys. imprvs., Wharton Co., TEXAS. CD 6/9/48.

Navarro County Electric Co-operative, Inc., Corsicana, Tex. Purchase and Hire. $75,000, 35 mi. rural distr. lines, Navarro Co., TEXAS.

Guadalupe Valley Electric Co-operative, Cost, Tex. Own Forces. $90,000, some rural distr. lines, TEXAS. CD 1/4/54.

Central Texas Electric Co-operative, Fredericksburg, Tex., Own Forces. $63,000, 35 mi. rural distr. lines, Gillespie Co., TEXAS. CD 6/11/52.

Southwest Texas Electric Co-operative, Eldordo, Tex. Force Account. $90,000, some tie-lines, Schleicher Co., TEXAS. CD 1/8/53.

City, Arlington, Tex. Force Account. $40,000, some WW sys. rehabilitation, ARLINGTON, TEX. Forrest & Cotton, 803 Praetorian Bldg., Dallas, Tex. engrs. CD 7/21.

City, Arlington, Tex. Force Account. $65,000, some sanitary sewerage sys. rehabilitation, ARLINGTON, TEX. Forrest & Cotton, 803 Praetorian Bldg., Dallas, Tex., engrs. CD 7/21.

City, El Paso, Tex. Own Forces. $60,000, swimming pool, EL PASO, TEX.

City, Ennis, Tex. Own Forces. $69,000, some road widening through city, ENNIS, TEX. CD 10/27.

▲ H. B. Zachry Constr. Div., Box 2570, San Antonio, Tex., CA, $3,200,000 labor only for 300 mi. western half of 628-mi. crude oil pipe line running from Fort Laramie, Wyo. to Freeman, Mo.;

O. R. Burden Constr. Co., 6702 E. 21 St., Tulsa, Okla., CA, $3,500,000. labor only 328 mi. eastern half of 628-mi. crude oil pipe line running from Fort Laramie Wyo. to Freeman, Mo., WYOMING, COLORADO, KANSAS and MISSOURI. Service Pipe Line Co., Div. of Western Pipe Line Co., 119 E. 6 St., Tulsa, Okla. CD 8/24.

BUILDINGS

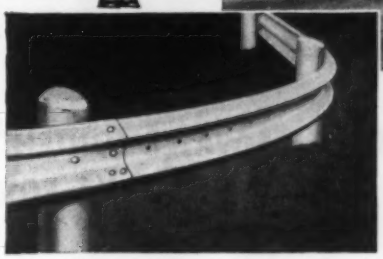
LOW BIDS AND CONTRACTS

▲ Dasta & Sons, 715 Charlotte St., Kansas City, Mo. CA, $2,000,000 SHOPPING CENTER, Laurel Heights Plaza, RAYTOWN, MO. Laurel Heights Realty Co., Hy. 50 and Gregory St., Kansas City, Mo. G. W. Wolf, 121 W. 63 St., Kansas City, Mo., archt.

T. H. McCasland, 916½ Main St., Duncan, Okla. Owner Builds. $300,000. 30,000 sq. ft. masonry SHOPPING CENTER, DUNCAN, OKLA. K. T. Price, Sr., 1516 Elk St., Duncan, Okla., archt.

W. P. Atkinson, Midwest City, Okla., Purchase and Hire. Approx. $930,000. 100 HOMES in Midwest City Housing Dist., MIDWEST CITY, OKLA. Treat Eng. Co., 3101 Classen St., Oklahoma City, Okla., engr. Awarded Sept. 1.

Are *Curves* bothering you in specifying beam type guard rail?



U·S·F *Barrier-Beam* HIGHWAY GUARD RAIL

Yes, indeed, USF Barrier Beam has the dependable strength and impact resistance of a beam section. Nevertheless, designing it for curves is easy. Straight sections are all you need for curve radii of 150′ or over. Shop forming for any radius from 20′ r to 150′ r is readily available.

Erection is simple, for no tension is involved, and no special tools or attachments are needed.

If curves are troublesome, specify rugged USF Barrier-Beam. Its ease of installation and maintenance make it a natural for straightaways, too.

Write for Full Details.

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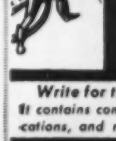
PNEUMATICALLY PLACED CONCRETE



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Archie C. Fitzgerald, Box 101, Austin, Tex., LB $641,000, girl's DORMITORY, BROWNWOOD, TEX. Howard Payne College, Brownwood, Tex. Bids Sept. 2. CD 8/17.

Edens-Birch Lumber Co., Corrigan, Tex. Purchase and Hire. $90,000, constr. LUMBER STORAGE SHEDS, CORRIGAN, TEX.

▲ **Lawless & Alford, Inc.**, Box 1248, Corpus Christi, Tex. CA $1,389,000. Valley Baptist HOSPITAL and Sams Memorial CHILDREN'S CENTER, HARLINGEN, TEX. Valley Baptist Hospital c/o Baptist General Convention of Texas) Baptist Bldg., Dallas, Tex Bids Aug. 24. CD 8/30, under LB.

C. L. Hendrick & Son, 2111 N. 21st St., Waco, Tex., CA $508,882, SANCTUARY, rebuilding portion of church and sanctuary, HUNTSVILLE, TEX. First Baptist Church Congregation, Huntsville, Tex. CD 8/17, under LB.

▲ **V. J Dunton Realty Co.**, Midland Savings Bldg., Denver, Colo. Owner Builds, $4,000,000. 161 country style HOMES, Dunton's Holly Hills, DENVER, COLO.

▲ **Carlson-McClellan Realty Estate Co.**, 2574 W. Arkansas St., Denver, Colo., Owner Builds, $1,500,000. approx. 200 RESIDENCES, west of Sheridan Blvd. between Louisiana and Florida Sts., DENVER, COLO

▲ **Master Craft Homes Co.**, 1002 Patterson Bldg., Denver, Colo. Owner Builds, $2,500,000. approx. 233 HOUSES, STERLING, COLO.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Wash., Moses Lake**—MATERIAL HANDLING WAREHOUSE—BA 9/30—Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash., one story, 480x600 ft., rein.-con. material handling warehouse. $1,000,000. Plans deposit $75. Harmon, Pray & Etrich, Lloyd Bldg., Seattle, archts. CD 3/3.

BIDS ASKED—BUILDINGS

▲ **Idaho, Kellogg**—SCHOOL—BA 9/23—School District 391, Kellogg, high school. $1,000,000. CD 10/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WASHINGTON**—State Hy. Comn., Olympia,

Peter Kiewit Sons Co., Longview, Wash., LB, $1,328,367, bridge at Javorsky, over Skagit River, Lewis Co. Bids Aug. 31. CD 8/18.

▲ **Donald M. Drake Co. & George A. Fuller**, 1600 Northwest Savier St., Portland, Ore., LB, $5,514,000 shop, office, service, fire station, boiler plant bldgs., utilities, well, grading, paving, etc. for flight center, MOSES LAKE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash. Bids Aug. 31. CD 8/13.

Seattle Contg. Co., 101 Nickerson St., Seattle, Wash., CA, $264,755, est. $260,897, paving W. Myrtle and other streets unit no. 2 of W. Thistle St. Project, SEATTLE, WASH. City, County-City Bldg., Seattle 4, Wash. Bids Aug. 30.

▲† **Guy F. Atkinson Co. & Ostrander Constr. Co.**, 10 W. Orange Ave. S., San Francisco, Calif., LB $12,708,179, navigation locks adjacent gravity dam and fish ladder, The Dalles Dam, Wasco Co., CIVENG-35-026-55-176, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Aug. 31. CD 6/23.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

Geo. W. Peterson & Jack W. Baker, 6170½ Santa Monica Blvd., Los Angeles, Calif., LB $722,657, 4 rein.-con. bridges, approaches, etc. between Kiel St. and Ovada Pl., Los Angeles Co. Bids Aug. 26. CD 8/5.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Peter Kiewit Sons' Co., P.O. Box 748, Arcadia, Calif., LB, $5,960,241, 3.9 mi. Ramona Freeway between Rosemead Blvd. and San Gabriel River, Los Angeles Co. Bids Aug. 26. CD 8/2.

† **Campbell Constr. & Equip. Co.**, 1150 Folsom St., San Francisco, Calif., CA, $559,331, site grading, roads, bldgs., etc. San Francisco Defence Area, Angel Island Site, S. F. Defence Area, Marine Co., SF 91-C & L, ENG-55-8, CALIFORNIA. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Aug. 5, awarded Aug. 26. CD 8/16, under LB.

† **West Winds, Inc.**, 1025 Battery St., San Francisco, Calif. CA, $41,382, Item 1, two 54 in. hollow jet valves and handling equip. for Monticello Dam, Solano Proj., Spec. DS 4175, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids July 13, awarded Aug. 24. CD 6/15.

† **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif., LB, $617,685, ADC facilities, hangar, taxiway, etc., ENG-04-203-55-11, Specs. 3495, 3496, 3497, 3498, 3501, CASTLE AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Aug. 26. CD 8/4.

Allison Honer Co., 312 N. Main St., Santa Ana, Calif., LB, $645,898, general contract 2 story, rein.-con. SCIENCE BLDG., Long Beach State College, LONG BEACH, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Aug. 25.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Man., Winnipeg — QUARTERS — BA 9/30 — Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., officers trainees quarters R.C.A.F. Station $700,000. Plans deposit $100. CD 9/24/52.

BIDS ASKED—BUILDINGS

Ont., Trenton—SCHOOL—BA 9/20—Trenton Bd. Educ., 35 College St., high school on Little Estate west of city limits, $600,000. Plans deposit $25. S. B. Coon & Son, 745 Mount Pleasant Rd., Toronto, archts. CD 2/17.

▲ **Ont., Belleville**—HOSPITAL—BA 9/27—Belleville General Hospital Bd., Dundas St. E., hospital exten. $1,250,000. Plans deposit $50. Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 515 Jarvis St., Toronto, archts. CD 9/21/53.

Newfoundland, Corner Brook—PUBLIC—BA 10/13—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., federal public bldg. $300,000. Plans deposit $200. E. A. Gardner, co owner, archt.

N. S. Lunenburg—PUBLIC—BA 10/13—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., federal public bldg. $300,000. Plans deposit $200. E. A. Gardner, c/o owner, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

Dawson, Wade Co., Ltd., 775 Clark Dr., Vancouver, B. C., CA, $1,783,351 road constr., Trans-Canada Highway Yolo National Park.

A. D. Ross & Co. Ltd., 1050 Mountain St., Montreal, Que., CA, $100,000, airport lighting facilities, GANDER, NEWFOUNDLAND. Dpt. Transport, Ottawa, Ont. CD 12/19/49.

▲ **Mannix Raymond Ltd.**, 660 St. Catherine St. West, Montreal, Que., CA, $2,411,080, Cofferdams A1 and C1 and dewatering of powerhouse site, St. Lawrence Power Project, on Canadian side of channel to Barnhart Island, ONTARIO. Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont. Bids Aug. 24. CD 8/5.

Montclair Constr. Co., Ltd., 315 Western Ave., Montreal, Que., CA, $857,350 incinerator bldg. and truck scales, Dickson and Royalmount Aves., MONTREAL, QUE. City, C. E. Longpre, city clk., City Hall, Montreal, Que.

A. N. Ball Co. Ltd., 11347 De Lesedres Ave., Montreal, Que., CA, $123,000. rehabilitations, alterations and conversion to Station Supply Section of Hangar No. 6, R.C.A.F. Station, ST. HUBERT, QUE. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont.

BUILDINGS

LOW BIDS AND CONTRACTS

Baynes Manning Ltd., 1010 Seymour St., Vancouver, B. C., CA, $635,204, 40-bed, concrete, brick, stone HOSPITAL, QUESNEL, B. C. Baker General Hospital Bd., Quesnel, B. C. Gardner & Thornton, 1664 West Broadway, Vancouver, B. C., archts. CD 12/18.

Fraser-Brace Eng. Co. Ltd., 360 St. James St. W., Montreal, Que., CA, $92,000. PLANT enlargement, CORNWALL, ONT. Canadian Industries Ltd., Second St. W., Cornwall, Ont.

(Continued on page 84)

PLASTIMENT* CONCRETE Ddensifier

CONTROLS SET AND REDUCES WATER CONTENT *WITHOUT CHANGING AIR CONTENT* FOR

- GREATER UNIFORMITY
- CRACK RESISTANCE
- WATER RESISTANCE
- SURFACE HARDNESS

*Plastiment consistently produces higher structural values in concrete because it limits and controls the growth of water-consuming cement gels during mixing and placing of concrete. This action reduces the water-cement ratio and retards the set of all concretes, plain or air-entrained, regardless of type of cement or aggregate Uniformity of set and water content (the governing factors of uniform concrete quality) are made possible by changing Plastiment proportions with concrete-placing-temperatures and field conditions.

Controlled set and uniformly low water content—exclusive with Plastiment—means less segregation, shrinkage, cold joints and other defects, greater uniformity and resistance to abrasion, cracking and leakage.

Write for your copy of "Plastiment Concrete Densifier" booklet and the Sika Job Bulletin describing the job at right. ➤

11 APARTMENT HOUSES AT PARKMERCED, SAN FRANCISCO
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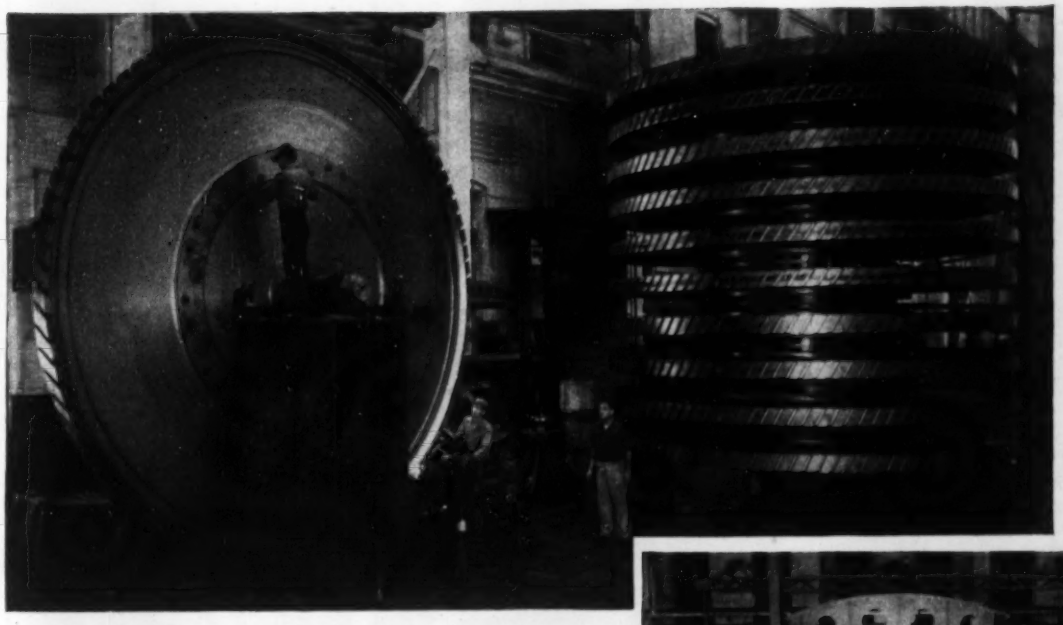
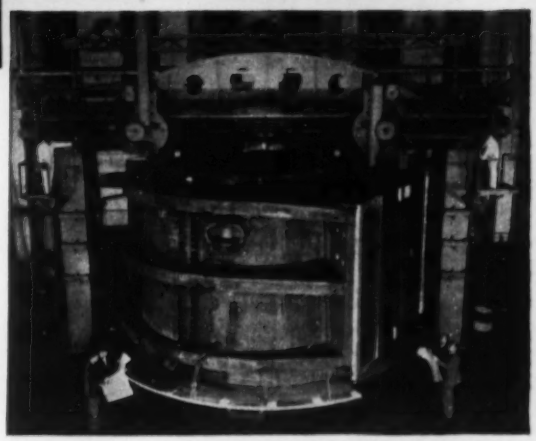


Rotor discs for mammoth 11-stage compressor were balanced and stacked for alignment in one of Newport News' five huge machine shops. Large engineering and technical staffs with a vast plant make Newport News an ideal source for large equipment . . . *standard or special in design.*



A 35-foot boring mill in Newport News' plant machining the 374,000-pound upstream housing for the giant axial flow compressor. The compressor is heart of an 8-foot supersonic wind tunnel at the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics at Moffett Field, Calif.

To create winds exceeding

2000 MPH

Newport News builds world's Mightiest Compressor

Whenever you want large units built with careful attention to detail, give the job to Newport News.

This company recently built an eleven-stage axial flow compressor that shatters all previous records for wind force . . . using what is believed to be the world's largest rotating object.

The rotor, weighing more than 400 tons, comprises eleven huge discs. Each disc, machined from a 96,000-pound forging, was finished to a 50,000-pound wheel and balanced to within 26 ounces at the rim. In each rim, slots for blades were machined to within .005" on special milling heads designed and produced in the Newport News plant.

Here at Newport News, you'll find more than large productive capacity. In machine shops, foundries and forging plants Newport News craftsmen complete your orders with specialized techniques backed by experience in fabricating thousands of products.

Newport News' craftsmen produce units that range from small components of spinning machines, to mammoth hydraulic turbines . . . from piping, pumps and valves, to vacuum tanks, digesters and bridge caissons.

These skilled men handle the job exactly as you want it done, for maximum results per dollar invested. So let us bid on your present or future projects. Learn how Newport News can help you. Send for our illustrated booklet entitled, "Facilities and products" . . . it's your for the asking.

Newport News

Shipbuilding and Dry Dock Company

Newport News, Virginia

(Continued from page 82)

▲ **Simms & Cooke Canada Ltd.**, 78 Mount St., London, England. Owner Builds. **$1,300,000.** HOUSING DEVELOPMENT, MORRISBURG, ONT.

▲ **George Hardy Ltd.**, 163 Wicksteed Ave., Toronto, Ont. CA, **$6,637,117.** West Block of Veteran Affairs, MEMORIAL BLDGS., Wellington St., OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids June 30. CD 7/8, under LB.

Taylor Woodrow (Canada) Ltd., 24 Isabella St., Toronto, Ont., CA, **$500,000**, PLANT No. 2, WHITBY, ONT. Dunlop Tire & Rubber Goods Co. of Canada, 876 Queen St. E., Toronto, Ont. Bids Aug. 19. Bids 8/19. CD 8/9.

▲ **J. E. Tremblay**, 127 de la Ronde St., Quebec City, Que., CA, **$1,000,000.** 100 HOUSING UNITS, on New Street, ARVIDA, QUE. Co-operative Syndicat National des Employes de l' Aluminum d' Arvida, Inc., Arvida, Que. Lamontagne & Gravel, 365 Racine St., Chicoutimi, Que., archts. CD 7/13.

J. **Slocombe**, 4205 de Courtrai St., Montreal, Que., CA, **$500,000**, WAREHOUSE and OFFICE, MONTREAL, QUE. Sherwin-Williams Co. of Canada Ltd., 2875 Centre St., Montreal, Que. D. F. Lebensold, 4465 Sherbrooke St. W., Montreal, Que., archt.

Magliore Couchon Ltee., 311 de La Salle St., Quebec City, Que., CA, **$85,000.** MILL exten. and WAREHOUSE, QUEBEC CITY, QUE. Anglo-Canadian Pulp & Paper Mills Ltd., 10 des Capucins Blvd., Quebec City, Que.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **ALASKA**—Alaska Road Comn., Dpt., Interior, Federal Bldg., Juneau, **Lytle, Green & Birch**, Securities Bldg., Seattle, Wash. LB **$1,699,134**, est. $2,197,659, reconstr. 42.5 mi. Alaska Hy., Sect. C-2, Mile 1265 to Canadian Border. **Bids Aug. 31.**

LATIN AMERICA

BIDS ASKED—HEAVY CONSTRUCTION

† **British West Indies**—PIERS—BA 9/22—Officer in Charge of Constr., P. O. Box 956, Coral Gables 34, Fla., landing craft piers on Grand Bahama, Eleuthera, San Salvador, Mayaguana and Grand Turk Islands for Joint Long Range Proving Ground, NOY 83649, Spec. 43357. **Plans deposit $10.**

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Burma—BA 11/16—Govt. of Burma, Electricity Supply Bd., 153 Ahlone St., Rangoon, supply and install equipment for 84,000 kw. hydro-electric power station, at Balu Chaung Hydroelectric Proj.

Proposed Projects

WATER SUPPLY

Ala., Albertville—Town, WW imprvs. **$759,000.** Polglaze & Basenberg, 812 S. 27 St., Birmingham, consult. engrs. CD 12/22.

O., Whitehall—City, WW plant. **$750,000.** Burgess & Niple, 2015 W. 5th Ave., Columbus, consult. engrs.

▲ **Utah, Salt Lake City**—Salt Lake City Corp., Roy W. McLeese, City-County Bldg., water storage and treatment. **$5,250,000.** CD 3/25.

SEWERS, WASTE DISPOSAL

▲ **Colo., Brighton**—South Adams County Sanitation Dist., Derby, bond election Sept. 14, sewer lines and sewage plant. **$1,500,000.** Ripple & Howe, 833 23 St., Denver, consult. engrs. CD 1/14/53.

▲ **Mo., Springfield**—City, cancelled **$6,600,000** bond election set for August 17, for sewerage rehabilitation. A. C. Kirkwood & Assocs., 3102 Troost St., Kansas City, Mo., consult. engrs. CD 8/10.

▲ **O., Cincinnati**—City, City Hall, bond election Nov. 2, sewer imprvs. **$3,700,000.** CD 2/10.

▲ **O., Cincinnati**—Bd. Comrs. Hamilton Co., Court House, bond election Nov. 2, storm and sanitary sewers, various locations, **$4,000,000.** CD 5/3.

O., Evendale—Village, bond election Nov. 2, trunk sewers. **$500,000.**

O., Tiffin—City, sewage treatment plant. **$900,000.** Jones, Henry & Williams, Security Bldg., Toledo, consult. engrs. CD 11/11/52.

▲ **O., Whitehall**—Village, Floyd Wise, council pres., sewage treatment plant. **$1,125,000.**

▲ **Utah, Salt Lake City**—Salt Lake City Corp., Roy W. McLeese, City-County Bldg., sanitary sewerage sys., **$5,180,000**; storm sewers, **$1,127,000.** CD 9/21/54.

BRIDGES

▲ **Calif., Long Beach**—Long Beach Harbor Dpt., 1331 El Embarcadero, Long Beach, superstructure of Ocean Blvd. Bridge over Los Angeles River, **$2,900,000.** James R. Bole, 730 E. 3 St., consult. engr.

Utah, Salt Lake City—Salt Lake City Corp., Roy W. McLeese, City-County Bldg., bridges and conduits. **$500,000.**

STREETS AND ROADS

▲ **O., Cincinnati**—City, City Hall, bond election Nov. 2, various street imprvs. **$2,200,000.** CD 11/7/52.

▲ **O., Cincinnati**—Bd. Co. Comrs. Hamilton Co., Court House, bond election Nov. 2, imprv. bridges various locations, **$1,000,000.** CD 8/9.

▲ **O., Cleveland**—Comrs. Cuyahoga Co., 135 Court House, Zone 14,
Dover Center Rd., grading, draining, paving from Butternut Ridge Rd. to north line city of Westlake, North Olmsted, **$1,350,000.**
Highland Rd., relocation, grading, draining, paving and bridges from south limits of Euclid to Euclid Ave., Euclid, **$1,000,000.**
Jennings Rd., grade, drain, pave and grade separation from Clark Ave. to Brookpark Rd., Cleveland, **$1,500,000.**
grade, drain, pave and bridges from Pleasant Valley and Brecksville Rds. to Alexander Rd., Cleveland, **$2,000,000.**
Rockside Rd., grade, drain, pave from Turney to Dunham Rds., Garfield and Maple Heights, **$200,000.**
Snow Rd., widen and resurf. from W. 130 St. to State Rd., Parma, **$500,000.** A. S. Porter, Standard Bldg., Cleveland, Zone 14, co. engr. CD 11/13/51.

▲ **O., Cleveland**—Comrs. Cuyahoga Co., 135 Court House, Zone 14,
Cedar Rd., widen from Warrensville Center Rd. to Richmond Rd. **$500,000.**
Columbus Rd., grade, drain and pave from Broadway to Bartlett Ave., **$300,000**, CD 5/6/53, under LB.
Eastland Rd., grade, drain, pave and bridge from Metropolitan Park Blvd. to Whitney Rd., **$140,000.**
Howard Ave., grade, drain, pave and bridge from Jennings Rd. to Harvard Ave. **$408,500.**
Warrensville Center Rd. widen and resurf. from Cedar Rd. to Mayfield Rd., **$575,000.**
Westward Dr., grade, drain, pave, from Pearl Rd. to Prospect Rd. **$210,000.**
West 210 St., grade, drain, pave from Lorain Rd. to Mastrick Rd., Fairview Park, **$275,000.** A. S. Porter, Standard Bldg., Cleveland Zone 14, county engr. CD 11/13/51.

▲ **Utah, Salt Lake City**—Salt Lake City Corp., Roy W. McLeese, City-County Bldg., street imprvs. **$1,250,000.** CD 5/24/44.

EARTHWORK, WATERWAYS

▲† **Alabama**—U. S. Eng., P.O. Box 1169, Mobile, Zone 7, imprv. Mobile Bay, deepening the bay channel and Mobile River channel to 40 ft. and widening turning basin in river to 1400 ft. square, Mobile. **$5,778,000.**

▲† **Florida**—U. S. Eng., P.O. Box 4970, 575 Riverside Ave., Jacksonville, dragline excav., Canal C 2; excav. and embankment of Levee L 14; excav., embankment of Levee L 2 and Levee L-3, pump station with installation of govt. furnished pumps, Structures S2 and S-6; pumps, engines and accessory equip. S-3, Central and Southern Florida Project. **$4,250,000.** CD 11/24.

▲† **Massachusetts**—U. S. Eng., 857 Commonwealth Ave., Boston, dredging harbor, Lynn, **$65,000**; dredging Fore River Island, Weymouth, **$4,400,000**; dredging harbor, Scituate, **$375,000**; dredging Town River, Quincy, **$525,000**; dredging Fall River, **$694,000.**

† **Rhode Island**—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., beach erosion proj., South Shore, Bullocks Point Cove. **$166,550.**

▲ **Texas**—Wills Point Water Assn., Roy W. Curtis, pres., Wills Point, dam and lake, to handle 940,000 acre ft. water annually **$22,500,000**; clearing and grubbing lake area, **$200,000**, foregoing near Wills Point, J. M. Lloyd, Tyler, consult. engr.

AIRPORTS

▲† **Ariz., Phoenix**—SHOULDERS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., stabilize shoulders of new light runway, **$750,000** non-standard power vault and utilities for non-standard power vault, **$300,000**, Luke Air Force Base. CD 3/27/51.

▲† **Calif., March Air Force Base**—CHAPEL, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, (300 SE) Base Chapel No. 3A, **$250,000**; primary electrical transmission lines, **$60,000**; distr. gas mains, **$60,000**; sewage disposal mains, **$60,000**; water mains, **$300,000** for potable water; Class AA roads, **$200,000**; storm water drainage, **$300,000**; new heavy operational parking apron, **$3,500,000**; aircraft taxiway access apron, **$1,500,000**; extending primary heavy taxiway, **$250,000**; extending heavy primary runway, **$800,000**, all foregoing at March Air Force Base. CD 12/10/52.

▲† **Calif., Muroc**—CELLS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, jet and turbo-test cell (2), **$1,500,000**; auxiliary missile assembly bldg., **$750,000**; standard auxiliary base, bulk supply warehouse, **$60,000**; auxiliary liquid oxygen test facility (1), **$300,000**; auxiliary compressor bldg. (1), **$60,000**; post exchange and cafeteria, **$300,000**; relocating bldgs. (2), **$750,000**; aero-medical research laboratory, **$300,000**; computation laboratory, **$300,000**; comb. ABM research laboratory, **$750,000**; rocket aircraft laboratory service (fuel system), **$300,000**; data reduction research laboratory, **$750,000**; new heavy primary taxiway, **$300,000**; rocket aircraft laboratory service (pavement), **$300,000**; jet engine overhaul shop addn. **$300,000**; new standard test flight hangar, **$3,500,000**; primary aircraft taxiway (4), **$3,500,000**; calibrated hardstand No. 1A, heavy (1), **$300,000**; new standard firing butt (1), **$300,000**; operational parking apron, **$3,500,000**; primmary aircraft runway (4), **$750,000**; aircraft warm-up pad, **$300,000**; hangar access apron, **$1,500,000**; recreation gymnasium, **$300,000**; deluge system, **$200,000**, all foregoing at Edwards Air Force Base.

▲† **Calif., Victorville**—APRONS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, high hangar access aprons, **$300,000**; Squadron Operations Bldg. No. 1A (6), **$300,000**; Control Tower No. 1A (1) **$300,000**; Base Maintenance Hangar No. 3, **$1,500,000**; Base Warehouse, Bulk Supply No. 10, **$300,000**; Airmen Club Bldg. No. 5D, **$300,000**, all foregoing George Air Force Base.

▲† **Calif., Victorville**—STORAGE, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, standard ADC rocket storage, **$300,000**; Base Maintenance Hangar No. 3, **$1,500,000**; Maintenance Shop No. 5 (Hangar No. 3), **$300,000**; air-ground range, **$300,000**; utilities for Squad and Operation Bldg. No. 1A (6), Control Tower No. 1A (1), Base Maintenance Hangar No. 3, **$300,000**, all foregoing at George Air Force Base. CD 4/5/51.

▲† **Colo., Colorado Springs**—HOUSING—Dpt. Air Force, Ent Air Force Base, Colorado Springs, 90-housing project, Ent Air Force Base, **$1,206,900.** CD 2/16/53, under LB.

▲† **Kan., Salina**—HOUSING—U. S. Eng., 601 Davidson Bldg., Kansas City, 8, Mo., 293 housing units, Smoky Hill Air Force Base. **$4,230,850.** CD 7/2/51.

▲† **Kan., Wichita**—HOUSING—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., 160 housing units, McConnell Air Force Base. **$2,398,600.**

▲† **Mo., Sedalia**—HOUSING—U. S. Eng., 601 Davidson Bldg., Kansas City, Zone 8, 418 housing units, Sedalia Air Force Base. **$6,042,450.** CD 1/22/52.

▲ **Que., Dorval**—PASSENGER TERMINAL—Dpt. Transport Ottawa, Ont., plans by Archibald, Ilsley & Templeton & Larose & Larose, 1440 St. Catherine St. W., Montreal, new passenger terminal at Montreal Airport **$5,000,000.** CD 7/22/53.

PUBLIC BUILDINGS

Ala., Dothan—HOSPITAL—City and Houston Co., plans by H. L. Holman, Jr., Ozark, hospital, **$750,000.** CD 4/11/50.

▲† **Ala., Sylacauga**—PLANT—U. S. Eng., P.O. Box 1169, Mobile, Zone 7, rehabilitation work at Alabama Ordnance Works, near here, **$46,000,000.** Liberty Defense Powder Corp., will operate.

▲ **Calif., Hermosa Beach**—SCHOOL FACILITIES—Hermosa Beach City School Dist., **$600,000** bond election Nov. 16, school facilities. CD 10/5/50, under LB.

▲ **Calif., San Diego**—HALL OF JUSTICE, etc.—San Diego Co., Civic Center, San Diego, **$8,400,000**, bond election Nov. 2, Hall of Justice and Jail. CD 11/18/52.

▲ **Conn., Mansfield** — SCHOOL — Natchaug Regional School Planning Bd., Mansfield, plans by Carl J. Malmfeldt & Assocs., 35 Pearl St., Hartford, regional high school, Bassett Bridge Rd., Route 89, **$1,780,000.** CD 8/10/53.

Fla., Miami—SCHOOLS—Dade Co. Bd. P. Instruction, 275 N. W. 2 St., plans by Watson & Deutschman, Chamber of Commerce Bldg., Junior High School, Miami Springs, **$500,000**; plans by Edwin T. Reeder Assocs., 1777 Biscayne Blvd., Westview Elementary School, **$400,000.** CD 11/6/52.

Fla., Sarasota—HOSPITAL—Sarasota Co., plans by Kannenberg & Hanebuth, 1422 2 St., 4 and 5th floors addn. to 3 story hospital now under construction, **$900,000.**

▲ **Ga., Columbus**—CIVIC AUDITORIUM—City and Muscogee Co., bond election Nov. 17, civic auditorium, **$1,500,000.**

Ill., Belleville—HOME—Bd. Supervs., St. Clair Co., Belleville, **$950,000** bond election Nov. 2, brick, concrete county home. CD 11/2/43.

Ia., Waterloo—SCHOOL—Bd. Educ., Waterloo, plans by M. B. Cleveland, Waterloo, East High School addn. **$611,000.** CD 8/10/53.

Kan., Columbus—COURT HOUSE—Cherokee Co., Columbus, voted $485,000 bonds Aug. 3, court house. **$650,000.** Glover & Newcomb, 3101 Hantoon St., Topeka, archts. CD 7/23.

▲ **Mass., Bridgewater** — GYMNASIUM — Commonwealth of Mass., Dpt. Education, 200 Newbury St., Boston, E-509 1 and 2 story, masonry gymnasium, incl. indoor swimming pool, Teachers College, **$1,180,000.** Harry Gulesian, 131 State St., Boston, consult. engr.

▲ **Mass., Swampscott**—SCHOOL—Town School Dpt., John H. Whitehead, supt., 24 Redington St., preliminary studies by Howard L. Rich & Herman F. Tucker, 45 Newbury St., Boston, high school between Charlotte Rd. and Smith Lane. **$1,600,000.** CD 10/23/51.

▲† **Mo., Camp Crowder**—HOUSING—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., 74 housing units. **$1,106,000.**

Mo., Clayton (St. Louis 5 P.O.)—HEALTH CENTER—St. Louis Co., c/o Luman P. Matthews, co. superv., Court House, Zone 5, plans by L. Roy Bowen & Assocs., 315 N. 7 St., St. Louis Zone 1, brick, concrete health center. **$952,000.**

Neb., Lincoln—SCHOOL—Bd. Educ., 720 S. 22 St., plans by S. A. Solheim & Assocs., 324 Sharp Bldg., John J. Pershing Elementary School. **$525,000.** CD 5/7/51.

(Continued on page 86)

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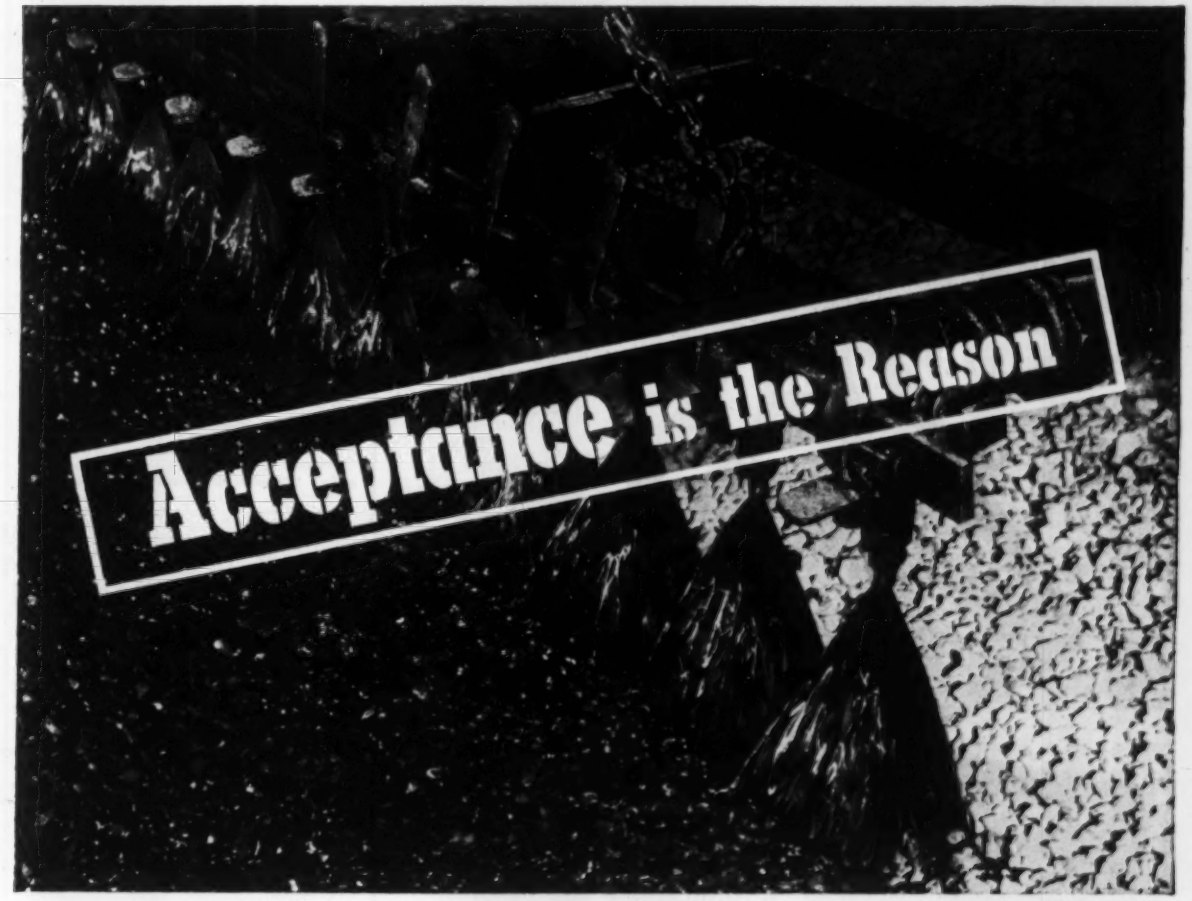

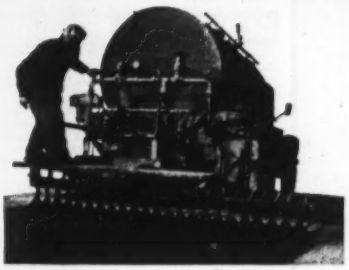

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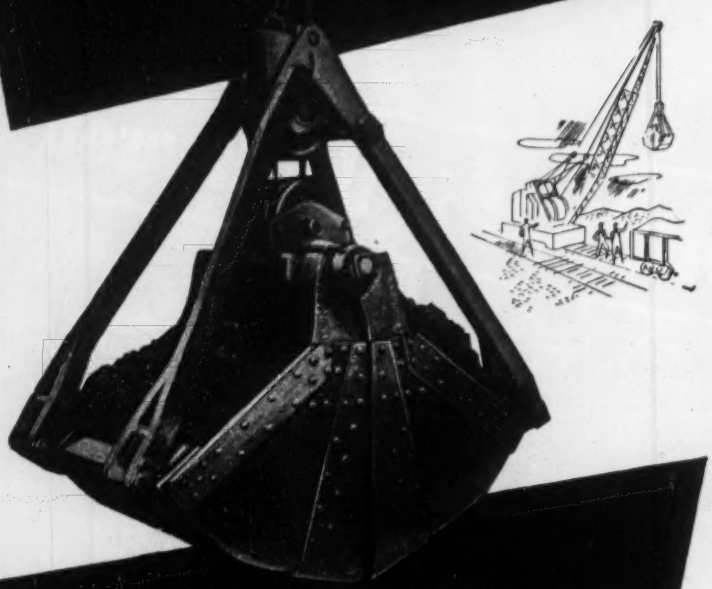

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(Continued from page 84)

▲ **O., Cincinnati**—UNIVERSITY—City, City Hall, bond election Nov. 2, imprvs. at University of Cincinnati, $4,600,000. CD 5/21/45.

▲ **O., Cincinnati**—COUNTY HOME—Bd. Comrs. Hamilton Co., Court House, bond election Nov. 2, Hamilton County Home addns. $3,000,000.

O., North College Hill (Br. Cincinnati)—SCHOOLS—North College Hill Bd. Educ., North College Hill (Br. Cincinnati) bond election Nov. 2, school bldgs. $890,000.

▲ **O., Parma**—SCHOOLS—Bd. Educ., Carl C. Byers, supt., Parma, bond election Nov. 2, school building program. $1,800,000. CD 11/5.

▲ **O., Upper Arlington**—HIGH SCHOOL—Bd. Educ., William S. Guthrie, pres., bond election Nov. 2, Senior High School, Brandon Rd. between Ridgeview and Zollinger Rds., convert present high school into Junior High School. $1,800,000. Benham, Richards & Armstrong, 167 E. State St., Columbus, archts.

Ore., Portland—POLICE HEADQUARTERS—City, City Hall, plans by Jacobberger & Stanton, McKay Bldg., 2 story police headquarters addn. $840,000.

▲ **Pa., Beaver Falls**—HIGH SCHOOL—North Eastern Beaver Co. Joint Schools, R.D., Beaver Falls, plans by B. J. McCandless, 239 Fourth St., Ellwood City, 1 story, brick, steel, Junior High School, North Sewickley Twp. $1,000,000.

▲ **Pa., Nineveh** — HIGH SCHOOL — New West Green School Dist., Nineveh, plans by Beall & Parkins, Washington Trust Bldg., Washington, Junior-Senior High School, Center Twp. $1,500,000.

Pa., Titusville—HIGH SCHOOL—Titusville Area Joint Schools, Titusville, plans by Freeburg & Lindquist, 15 E. 4 St., Jamestown, N. Y., 2 story, brick, block Colestock High School addn., alterations. $900,000.

▲ **Pa., Wilkes-Barre**—MENTAL INSTITUTION—General State Auth., 18 and Herr Sts., Harrisburg, plans by Lacy, Atherton & Davis, Sterling Hotel, constr. State Mental Institution for Defective Delinquents. $10,000,000. A. F. Jores, c/o owner, ch. engr. CD 3/10.

▲† **Tenn., Oak Ridge**—RESEARCH REACTOR—Atomic Energy Comn., Oak Ridge, research reactor at Oak Ridge National Laboratory. Union Carbide & Carbon Corp., operators, will supervise constr. $2,800,000.

▲ **Tex., Longview**—HOSPITAL—Gregg Memorial Hospital, Longview, hospital addn. $1,000,000.

▲ **Utah, Salt Lake City**—PUBLIC BUILDINGS—Salt Lake City Corp., Roy W. McLeese, City-County Bldg., public buildings, $5,250,000.

▲† **Wash., Fort Lewis**—HOUSING UNITS—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, plans by Durham, Anderson & Freed, 1100 Denny Way, Seattle, 800 family housing units. $12,000,000. CD 11/7/51.

▲ **Wash., Spokane**—SCHOOLS—City, City Hall, $5,000,000 bond election Nov. 2, schools.

Wis., Prairie du Chien—HOSPITAL—Memorial Hospital Addn., Prairie du Chien, 44-bed hospital, $560,000.

▲ **Ont., North Bay**—FEDERAL GOVERNMENT—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by Shore & Moffat, 79 Queen St. E., Toronto, and E. A. Gardner, ch. archt., c/o owner, 4 story, bsmnt., 140x165 ft., rein.-con., stone federal government bldg. with 2 story 26x36 ft., garage, Ferguson and Worthington Sts. $1,000,000.

COMMERCIAL BUILDINGS

Ala., Homewood—OFFICE—Jim Wood, Jr., 2906 S. 18 St., plans by Horace Weaver, 2201 Highland Ave. S., Birmingham, office $500,000.

▲ **Ala., Montgomery** — SHOPPING CENTER — James Flowers, Representing Owners, 158 Lee St., plans by Pierre Ghent & Assocs., 1836 Jefferson Pl., Wash., D. C., shopping center. $3,000,000.

Ala., Montgomery—HOTEL—Dr. S. D. Suggs, Shepherd Bldg., hotel, $2,500,000.

▲ **Calif., Puente**—DWELLINGS—Hart Constr. Co., 17639 Van Owen St., Los Angeles, plans by Ayres & Fiege, 4253 Coldwater Canyon Ave., Los Angeles, 146 frame, stucco dwellings, $1,250,000.

▲ **Ind., Indianapolis** — CHURCH — Second Presbyterian Church, Rev. Jean Milner, Vermont and Pennsylvania Sts., Zone 4, plans by McGuire & Shook, 1400-01 Fletcher Trust Bldg., Zone 4, stone Church "Meridian Hills", Meridian St. near 77 St. $1,000,000.

Ia., Newton—HOSPITAL—Skiff Memorial Hospital, Newton, hospital. $553,500.

Kan., Kansas City—CLUB HOUSE, etc.—Mission Hills Country Club, 53 St. and State Line Rd., Kansas City, plans by Kivett & Myers, 1016 Baltimore St., Kansas City, Mo., club house and swimming pool. $950,000. Angus McCallum, 1016 Baltimore St., Kansas City, Mo., assoc. archt.

Mass., Boston—RESIDENTIAL DEVELOPMENT—Almont Acres, Box 182 Gainey's, 89 State St., 50 residences in residential development in Mattapan. $700,000.

Mass., Hyde Park—RESIDENCES—Frank Losardo, 1102 River St., plans by Lester Lechter, 739 Boylston St., Boston, 39 residences, off West St. $500,000.

▲ **Mass., Peabody**—SCHOOL—Roman Catholic Archdiocese of Boston, Chancery Office, 1 Lake St., Brighton, high school in North Peabody near Danvers Line, $1,000,000.

▲ **Mass., Saugus**—DEPARTMENT STORE—R. H. White Co., 518 Washington St., Boston, department store, Auto Route No. 1. $1,500,000.

N. Y., New York—OFFICE—R. & K. Corp., 1400 Broadway, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, office bldg. alterations, 59-65 W. 39 St. $550,000.

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O., Dayton—MOTEL—Eastmont Park Corp., c/o Peirce Wood, atty., Callahan Bldg., 1 story motel, restaurant and store bldg., U. S. 35 corner Spinning Rd. $500,000.

▲ Pa., Phila.—DEPARTMENT STORE—Owner, c/o Wallace & Warner, archts., Bryn Mawr, department store and parking area. $2,500,000.

▲ Pa., Phila.—HIGH SCHOOL—Roman Catholic Archdiocese of Phila., 310 N. 19 St., plans by Stickle & Assocs., 125 City Line, Bala Cynwyd, Pa., and 2422 Prospect Ave., Cleveland, O., Bishop Neumann High School. $1,600,000. CD 12/1.

▲ Wis., Albion—SEMINARY—Redemptorist Fathers of St. Louis, Kirkwood, Mo., plans by Maguolo & Quick, 4908 Delmar Blvd., St. Louis, Mo., seminary. $2,000,000.

Wis., Wauwatosa—HOSPITAL—Camilliam Fathers, 10100 W. Blue Mound Rd., plans by Siberz, Purcell, Cuthbert & Newcomb, 1920 Monroe St., Madison, 3 story hospital. $700,000.

▲ Ont., Barrie—HOUSING—Henry Bernick, 137 Ellen St., Midland, housing development on 60-acre site on Highway 400, near north end of here. $2,000,000.

Ont., Windsor — SEMINARY — Canadian Redemptorists Fathers, 141 MacAveay St., Toronto, seminary. $500,000.

INDUSTRIAL BUILDINGS

▲ Conn., Hartford—WAREHOUSES, etc.—C. H. Miller & Sons, c/o Charles H. Miller, 175 Terry Rd., West Hartford, 4 warehouses and 800 ft. railroad siding in Capitol Park, $1,000,000.

Ga., Atlanta—PARKING GARAGE—McIntyre Realty Co. Owner's Representative, Healey Bldg., auto parking garage. $500,000 .

▲ Ill., Barrington—RESEARCH LABORATORY—Quaker Oats Co., 222 W. N. Bank Dr., Chicago, Zone 54, plans by Voorhees, Walker, Foley & Smith, 72 Wall St., New York, N. Y., 600,000 sq. ft. research laboratory, $6,000,000.

▲ Mass., Norwood — MANUFACTURING, etc.—Mason-Neilan Regulator Co., 1190 Adams St., Dorchester, plans by Harry J. Korslund, 506 Washington St., Norwood, manufacturing and office, Nahaton St. and Providence Hy. $1,000,000. Goldberg-LeMessurier Assoc., 739 Boylston St., Boston, consult. engrs. CD 4/15.

▲ N. Y., Brooklyn—PLANT—Barton's Bonbonniere, 80 DeKalb Ave., plans by Tobias Goldstone, 189 Montague St., 3 story, 200,000 sq. ft. candy plant addn., DeKalb Ave. $2,000,000. Weiss & Basser, 130 W. 42 St., New York, assoc. designers.

▲ O., Port Clinton—FACTORY—Celotex Corp., Otis S. Mitchell, pres., 120 S. LaSalle St., Chicago, Ill. addn. of 125,000 sq. ft., eight factory structures at east edge of town, adjoining New York Central Sys. tracks. $3,000,000.

▲ O., Toledo—PARKING GARAGE—Downtown Parking Stations, Inc., c/o Claude Campbell, Security Bldg., underground parking garage for 1,000-cars on Adams St. side of Courthouse Square, single-tier. $2,500,000. CD 2/28/49, under Unclassified.

Pa., Wynnewood—SUB-STATION—Phila. Electric Co., 9th and Sansom Sts., Phila., sub-station $600,000. N. C. McHugh, c/o owner, engr.

▲ S. C., Charleston—BAKERY—Claussen Baking Co., 1589 Broad St., Augusta, Ga., bakery. $1,500,000. CD 6/21/43.

S. C., Charleston—WAREHOUSE—Thomas & Howard Co., 191 E. Bay St., warehouse. $500,000.

▲ S. C., Lancaster—PLANT—Spring Cotton Mills, Lancaster, plant addn. $2,200,000.

Tex., Houston—PLANT—Pittsburgh Plate Glass Co., 101 Crawford St., plans by Milton McGinty, 2425 Ralph St. 70,000 sq. ft., steel, masonry plant, Armour Dr. $500,000. CD 4/20.

Ont., Port Union—PLANT—Canadian-Johns-Manville Co. Ltd., 199 Bay St., Toronto, 1 story, 150x400 ft. plant addn. $500,000.

UNCLASSIFIED

▲ Ala., Birmingham—FREIGHT YARDS—Louisville & Nashville R. R. Co., L. L. Adams, ch. engr., 908 W. Broadway, Louisville 1, Ky., expanding Boyles Freight Yards, Over $5,000,000.

▲ Mass., Boston — TELEVISION STATION — Columbia Broadcasting System, Inc., 485 Madison Ave., New York 22, N. Y. television station. $1,904,000. Jay W. Wright, c/o owner, consult. engr.

Mass., Boston—TELEVISION STATION—Massachusetts Bay Telecasters, 2121 Essex St., television station. $630,000. Frank H. McIntosh, Wyatt Bldg., Wash. 5, D. C., consult. engr.

Mich., Ann Arbor—TELEVISION STATION—Regents of the University of Michigan, 504 S. State St., television station, WVOM TV. $535,000. J. J. Swantek, c/o owner, consult. engr.

Mich., Detroit—TELEVISION STATION—UAW-CIO Broadcasting Corp. of Michigan, 8000 E. Jefferson St., television station, WCIO-TV. $883,000. Weldon & Carr, 1001 Connecticut Ave. N.W., Wash., 6, D. C., consult. engrs.

▲ O., Cincinnati—PLAYGROUND—City, City Hall, bond election Nov. 2, various playground imprvs. $1,000,000. CD 11/7/52.

▲ Ont., Fort Erie—RACE TRACK IMPRVS.—Ontario Jockey Club, 25 King St. W., Toronto, Fort Erie Race Track imprvs. $1,000,000.

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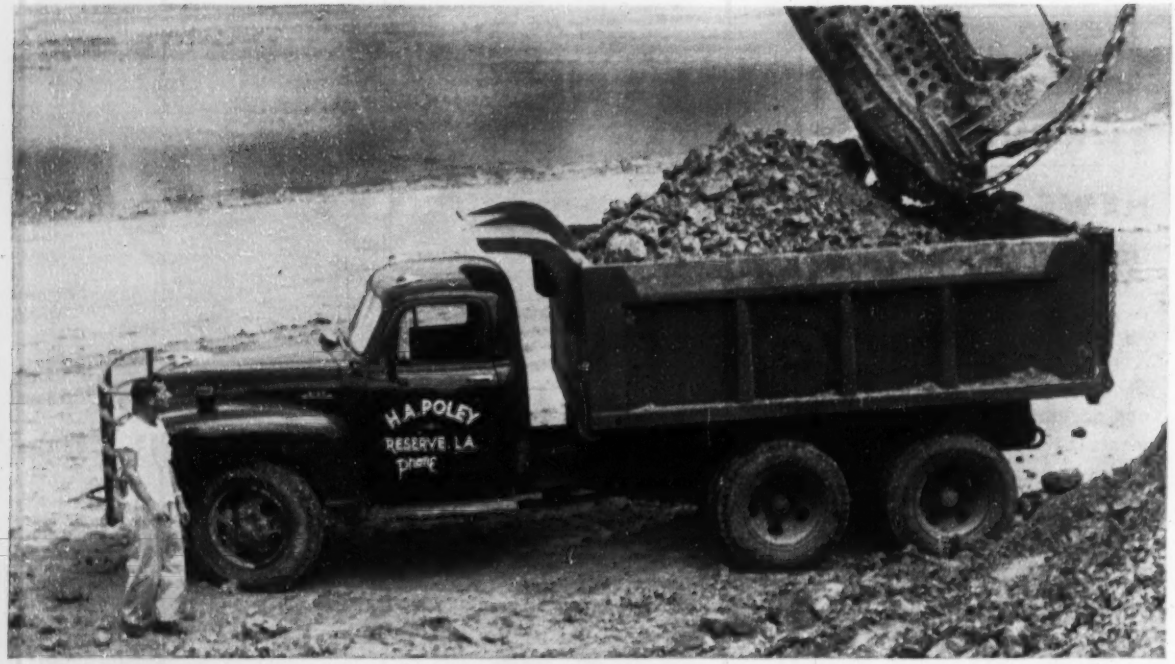

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 23 Massachusetts
STREETS AND ROADS
September 21 Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—State Dpt. P. Wks. & Hys., Concord, **Lambert Constr. Co.**, White River Jct., Vt., LB **$549,542**, road mix hy. 2.79 mi. N.H. Rte. 9, Chesterfield-Westmoreland-Keene. Bids Sept. 2. CD 8/24.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Green Manor Estates, Inc.**, c/o Neil H. Ellis, pres., 45 Crosby St., Manchester, Conn. Owner Builds. **$1,400,000.** 125 single RESIDENCES, WINDSOR LOCKS, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 21 Maryland September 28 New Jersey
September 30 New York
STREETS AND ROADS

▲† **Del., Dover**—RUNWAY, etc.—BA 9/24—U. S. Eng., 2635 Abbottsford Ave, Phila., Pa., runway alterations, taxiway alterations warm-up pads, and runway and taxiway lighting, Dover Air Force Base, ENG-36-109-55-11. $3,000,000. Extended date. CD 8/27.

BIDS ASKED—BUILDINGS

▲ **Pa., Phila.**—HIGH SCHOOL—BA 11/12—Bd. Educ., 21 and Winter Sts., Senior High School, Cottman and Bleigh Sts. $6,750,000. The Ballinger Co., 121 N. Broad St., archt. CD 1/9/53.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Ellwood City**—MANUFACTURING—The Townsend Co., New Brighton, 1 story, 155x540 ft. brick, block, steel specialties bldg., soon lets contract. Michael Baker, Baker Bldg., Rochester, Pa., engr. Joseph F. Bontempo, Baker Bldg., Rochester, archt. CD 3/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Whiffen Electric Co., Inc. & Nager Electric Co., Inc., 84 Martine Ave., White Plains, N. Y., LB **$659,400.** 3.39 mi. Tappan Zee Bridge and approaches, New York State Thruway-Hudson Sect. Sub. 9B, H. T. 54-1, Rockland and Westchester Counties. Bids Aug. 19. (Correction—contractors). CD 8/23, under LB.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Lipsett, Inc., 210 S 40 St., Phila., Pa., CA **$4,395,584,** constr. 881 ft. deck-girder and I-beam bridge over Schuylkill River at Vine St., Phila., Philadelphia Co. Bids July 9. CD 7/13, under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,
James D. Morrissey, Inc., 9119 Frankford Ave., Phila., Pa., LB **$3,473,751,** constr. 4.34 mi. sect. Northeastern Exten. of Pa. Turnpike, Sec. 35-D, in Towamancin, Lower Salford and Franconia Twps., Montgomery Co. Bids Sept. 7. CD 8/17.

MARYLAND—State Rds. Comn., 108 E Lexington St., Baltimore, Zone 2,
Talbott Marks Co., Inc., Box 308, Clarksville, Va. LB **$687,818.** grading, drainage, paving 1.496 mi. north bound lane Baltimore-Harrisburg Expressway north of Towson Contr. B 578-28-420, Baltimore Co.;
San Finley, Inc., Box 2389, Roanoke, Va. LB **$317,914.** grading, drainage, wid'n., relocation 5.767 mi. State Rte. 27, Taylorsville Contr. CL 337-2-720, Carroll Co. Bids Aug. 31. CD 8/18.

▲ **DELAWARE**—State Hy. Dpt., Dover,
A. S. Wikstrom, Inc., Skaneateles, N. Y., LB, **$1,242,171** Alt **$1,251,781.** Walnut Street Bridge Superstructure Contract 1224 (4), New Castle Co. Bids Aug. 18. CD 7/20.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Eastwood Village Homes**, c/o Klein & Parker Realty Co., 1391 Northern Blvd., Roslyn, N. Y. Owner Builds. **$3,500,000.** 400 HOUSES, 150-acre tract, north side of Jericho Turnpike, CENTEREACH, N. Y. Donald G. Patrick, c/o owner, archt.
Kings Park Greens Homes, c/o Alwin Cassens, Jr. archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$800,000.** 75 HOUSES, tract on E. Northport Rd., east of Avenue B, KINGS PARK, N. Y.
▲ **Orchard Park Homes**, c/o Herman York, archt. 90-04, 161 St., Jamaica, N. Y. Owner Builds. **$2,400,000.** 150 HOUSES, Seamen's Neck Rd. north of Jerusalem Ave., WANTAGH, N. Y.
▲ **Baton Constr. Co.**, 1717 Sansom St., Phila., Pa., CA, **$2,500,000** 1 story, 300x90 ft., steel, masonry WAREHOUSE, CAMDEN, N. J. Campbell Soup Co., 100 Market St., Camden, N. J. Bids Aug. 6. CD 8/3.
Voorhees Estate, c/o Rudolph Novak, archt., 713 Main Ave., Clifton, N. J., Owner Builds, **$650,000,** 28 HOUSES on tract at Voohees and Van Courtland Sts., TEANECK, N. J.
Sheffield Plaza Shopping Center, New Sheffield, Aliquippa, Pa. Owner Builds. **$550,000.** 1 story, 140x550 ft., brick, block, steel SHOPPING CENTER, ALIQUIPPA, PA.
▲ **Joseph R. Culhane & Louis G. Kelly**, 954 S. High St., West Chester, Pa. Separate Contracts. **$1,280,000.** RESIDENTIAL DEVELOPMENT, Waterloo and Lakeside Aves., BERWYN, PA.
Brusca Bros., 5153 Cypress St., Pittsburgh, Pa., LB **$518,500.** Base Bid, 2 story, bsmnt., 224x249 ft. brick, block HIGH SCHOOL, CARNEGIE, PA. Municipal Auth. of School Dist. of Carnegie, Carnegie, Pa. Wm. C. Young, Standard Life Bldg., Pittsburgh, Pa., archt. CD 10/2/50.
Melvin Leventon, 258 Broadway, Merion, Pa., Separate Contracts. **$780,000.** RESIDENTIAL DEVELOPMENT, 6 and Engle Sts., CHESTER, PA.
▲ **Girsh Moss, Inc.**, 6456 West Chester Pike, Upper Darby, Pa. Separate Contracts. **$2,000,000.** RESIDENTIAL DEVELOPMENT, 4th St. and Ellis Ave., COLWYN, PA.
▲ **O. H. Martin Assocs.**, 18 1st St., Pittsburgh, Pa., CA, general constr.;
George H. Soffel Co., 1700 Jane St., Pittsburgh, Pa. CA, heating, ventilating, air-conditioning;
H. P. Foley Co., 228 Isabella St., electrical work;
Westinghouse Elevator Co., Gulf Bldg., Pittsburgh, Pa., CA elevators for constr. modern brick, stone general headquarters OFFICE, atop Cabin Hill above State Hy. 66. GREENSBURG, PA. Total est. **$5,000,000.** West Penn Power Co., 14 Wood St., Pittsburgh, Pa. Bids Aug. 26. CD 8/19.
North Arch Corp., c/o Manis Novack, 1211 Chestnut St., Phila., Pa., Separate Contracts. Approx. **$900,000.** 70 RESIDENCES, Arch St., NORRISTOWN, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.
▲ **Rice & Weidman**, Box 1386, Lancaster, Pa., CA **$1,140,500.** general contract Junior-Senior HIGH SCHOOL, PARKESBURG, PA. Octorara Area School Dist., Parkesburg, Pa. Bids July 22. CD 7/16.
Daniel A. Dintenfass, Inc., 6905 Castor Ave., Phila., Pa., Separate Contracts. **$900,000.** RESIDENTIAL DEVELOPMENT, Trout Rd. and Welsh Rd., PHILA., PA.
Northways, Inc., 5903 Babcock Blvd., Pittsburgh, Pa. Owner Builds. Approx. **$600,000.** 3 story, bsmnt., brick, block, steel frame APARTMENT, 2 storys, brick veneer ROW HOUSING, Ross Twp. PITTSBURGH, PA. S. E. Kovach, Jr., 1500 Radford Rd., Pittsburgh, Pa., engr.
Hilles Constr. Co., 36 E. Woodland Ave., Springfield, Pa., Separate Contracts. **$625,000.** RESIDENTIAL DEVELOPMENT, Bennett Rd., SPRINGFIELD, PA.
▲ **Clifton Builders Supply Co.**, Primos, Pa., CA **$6,000,000.** RESIDENTIAL DEVELOPMENT, Valley Forge Rd., etc., VALLEY FORGE, PA. Albert D. Monteith, Strafford, Pa. Erling Wenge, McClatchy Bldg., Upper Darby, Pa., archt.
R. S. Noonan, Inc., 26 N. Duke St., York, Pa., LB **$519,779.** HOTEL addn., alterations, parking lot and GARAGE, YORK, PA. Yorktown Hotel, 42 E. Market St., York, Pa. Bids Aug. 20. CD 8/18.
Gilbane Building Co., 90 Calverly St., Providence, R. I. CA Est. **$600,000.** Sheraton Park HOTEL wing, WASH., D. C. Washington Sheraton Corp., 2660 Woodley Rd. N.W., Wash., D. C. Wilson & Denton, 1022 20 St. N.W., Wash., D. C.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 22 Virginia September 24, Alabama, Kentucky
STREETS AND ROADS
September 22 Virginia September 24, Alabama, Kentucky
September 24 Tennessee

▲ **Virginia**—TUNNEL—BA 10/8—Commonwealth of Va., Dpt., Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond,
Contr. No. C-1, Hampton Roads Tunnel, Portal Islands and dredging, electrical work, water service drainage piping; ventilating sys. and survey control towers, tunnel and portals length, approx. 7,000 ft., incl. 23 precast tube sects.
Contr. No. C-2, North and South approach bridges;
Contr. C-2-Alt. 1, structural steel stringer constr. for 80-ft spans;
Contr. C-2-Alt. No. 2, prestressed concrete beam constr. for 80-ft. spans. Plans deposit $50 for tunnel, $30 for bridges, Est. $54,000,000-$60,000,000. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, N. Y., engrs. CD 8/6.

BIDS ASKED—BUILDINGS

▲ **Ga., Summerville**—SCHOOLS—BA 10/12—Chattooga Co. Bd. Educ., schools $1,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Richards & Assocs., 121 Cedar St., Carrollton, Ga. CA **$587,490,** rural distr. lines, Darlington, Marion, Dillon, Marlboro, Florence, and Chesterfield Counties, SOUTH CAROLINA. Central Electric Power Co-operative, Cornell Arms Bldg., Columbia, S. C. CD 2/5.
▲ **GEORGIA**—Georgia State Toll Bridge Auth., 2 Capitol Square, Atlanta,
American Bridge Div., U. S. Steel Corp., 525 Wm. Penn. Pl., Pittsburgh, Pa., LB **$3,677,480,** Contrs. 2 and 3;
Seaboard Constr. Co., Brunswick, Ga., LB **$530,074,** Contr. 4, superstructure, Turtle River Bridge, Glynn Co. Bids Sept. 3.
▲† **Belcher Oil Co.**, 1217 Biscayne Blvd., Miami, Fla. CA **$1,191,988,** est. $993,735. pumping station S-2, etc. Lake Okeechobee South Shore Levee, Central and Southern Florida Flood Control Proj., West Palm Beach Co., Inv. 55-3, FLORIDA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. CD 9/2, under LB.
▲† **McKay-Helgerson Co.**, P.O. Box 57, Greenville, S. C., LB, **$1,183,472,** roads and utilities, Homestead Air Force Base, ENG-98-123-55-5, HOMESTEAD, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Aug. 31. CD 7/21.
▲ **P. A. Buchanan Contg. Co.**, P. O. Box 1903, Birmingham, Ala., CA, **$1,297,626,** natural gas systems in Hamilton, Hackenberg Winfield and Guin, and Culligent, ALABAMA. Northwest Alabama Gas District, Hamilton, Ala.
KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, **Harry O. Wyse**, Versailles Rd., Lexington, Ky. CA **$710,315.** bit. surf. Class I 10.293 mi. Harrodsburg-Lexington Rd., F 5 (2), F 89 (2), SP 84-32, SP 57-108, Mercer and Jessamine Counties. CD 8/19, under Bridges.
▲ **TENNESSEE**—State Hy. Dpt., Nashville,
W. R. Fairchild Constr. Co., P.O. Box 31, Hattiesburg, Miss., CA **$1,086,350,** grade, drain, paving and bridge across Emory River, F-031-1 (2), Roane Co. Bids June 11. CD 6/17, under LB.
▲ **Middle Tennessee Electric Membership Corp.**, N. Maple St., Murfreesboro, Force Account. **$1,785,000.** rural distr. lines, Rutherford, Wilson, Cannon and Williamson Counties, TENNESSEE. CD 4/7/48.

BUILDINGS

LOW BIDS AND CONTRACTS

Cecil's, Inc., Spartanburg, S. C., LB **$655,000,** NURSES HOME, CHARLESTON, S. C. Medical College of South Carolina, 1 Lucas St., Charleston, S. C. Bids Sept. 2. CD 8/4.
E. A. Scott & Sons Co., Americus, Ga., LB, **$607,000.** SCHOOLS, JACKSON, GA. Butts Co. Bd. Educ., Jackson, Ga. Bids Sept. 2. CD 8/27.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 21 Indiana September 21, 22 Michigan
STREETS AND ROADS
September 22 Michigan

BIDS ASKED—BUILDINGS

▲ **Mich., Farmington**—SCHOOLS—BA 9/28—Farmington Twp. School Dist., 33000 Thomas St., 3 elementary schools, Gill Rd., Middlebelt Rd., and Shiawasee Rd. $1,500,000. Plans deposit $10 each, Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, archt. CD 4/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
C. F. Replogle, Box 308, Circleville, O., LB **$1,489,708,** est. $1,557,000, Type T-71, 3.671 mi. SR 7-(17.71-20.14), F-534 (8), City of Beltaire, Village of Bridgeport, Belmont Co.
Elmer Borchardt, Inc., Castalia, O., LB **$105,713,** est. $102,700, Type T-35, 1.496 mi. SR 269-9-21, S-38 (3), Erie Co.; LB **$85,222,** est. $80,300, Type T-35, 1.455 mi. USR 6-(7.59-7.85); SR 387-(0.00-0.59), (City of Sandusky), Erie Co.;
Harley E. Calvin & Co., Box 284, Marietta, O., LB **$80,862,** est. $85,800, Type T-32 on B-119 and structure 0.274 mi. SR 141-9.04, S-295 (4), Gallia Co.;
McNamara & Reder, R.F.D. No. 4, Delaware, O., LB **$89,522,** est. $111,200, Type T-32 on B-119 and structure 0.307 mi. SR 529-5.68, S-109 (3), Marion Co.;
Kulka Industrial Corp., 826 N. Webb Ave., Alliance, O., LB **$384,499,** est. $428,000, Type T-35 and structure 1.028 mi. SR 48-(5.27-5.73); SR 55-3.15, F-FG-55 (2), Village of Ludlow Falls, Miami Co.;
Oyler Bros., Inc., 1324 2nd St. S.W., Canton 11, O., LB **$199,113,** est. $240,400, Type T-35 and structure 1.234 mi. USR 62-(3.92-4.03); SR 93-(3.70-4.32), S-840 (2), Village of Brewster, Stark Co.;
Clinton Asphalt Paving Co., Box 110, Wilmington, O., LB **$74,988,** est. $77,200, Type T-35 0.255 mi. USR 68-41.38, Brown Co.;
Byrnes-Conway Co., 50 Oak St., St. Bernard, Cincinnati 17, O., LB **$194,239,** est. $199,200, Type T-35 0.652 mi. SR 268-(0.00-0.60), City of Cheviot, Hamilton Co.;

Philip Skinner, Rte. 1, Bethesda, O., LB **$86,051,** est. $100,300, Type T-32 on B-119, 0.984 mi. SR 378-(2.21) (3.35), Lawrence Co.;
Newark Asphalt Paving Co., W. Poplar Ave., Newark, O., LB **$335,366,** est. $405,100, Type T-35 and structure 5.445 mi. SR 16-(0.00-3.60), Licking Co.;
Standard Asphalt & Tar Co., 1640 Fourth Ave., Charleston, W. Va., LB **$79,046,** est. $85,500, Type T-35 3.126 mi. USR 33-10.84; SR 143-4.82, Parts Nos. 1 and 2, Meigs Co.;
Fuller-Davies Co., 1111 W. Court St., Cincinnati, O. LB **$133,948,** est. $149,200, Type T-35, 9.266 mi. SR 201-0.00, (2.40-2.47), City of Dayton, Miami and Montgomery Counties;
Great Lakes Constr. Co., Box 2278, Brooklyn Station, Cleveland, O., LB **$875,235,** est. $1,035,000, Type T-71 and structure 4.702 mi. SR 14-8.81, Portage Co.;
S. E. Johnson Co., P. O. Box 29, Maumee, O., LB **$179,-914,** est. $164,500, Type T-35 on B-119, 1.878 mi. USR 224-6.13, (15.72), (18.24), Putnam and Van Wert Counties;
Ohio Road Improvement Co., 30 E. Broad St., Columbus, O., LB **$268,478,** est. $260,800, Type T-35, 5.235 mi. SR 82-(0.00-1.63), Trumbull Co.
cancelled bids to have been opened Aug. 31, Type T-35, 0.326 mi. USR 30N-10.89, Allen Co. Bids Aug. 31. CD 8/4.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,
Fitz Simons & Connell Dredge & Dock Co., 10 S. LaSalle St., Chicago 3, Ill., CA **$1,063,002,** substructure for bridge over Illinois River at Peoria on City Rte. U. S. 150 near Jackson and Fayette Sts. in Peoria, Peoria and Tazewell Counties. Bids Aug. 3. CD 8/9, under LB.

▲ **INDIANA**—State Hy. Comn., Indianapolis, Zone 4,
Rock Road Constr. Co., 5915 Rogers Ave., Chicago, Ill., LB, **$1,321,743,** est. $1,645,754, 0.99 mi. State Road 420, Hammond, Lake Co.; LB **$1,590,770,** est $1,765,948, 5.25 mi. U. S. Rd. 41, Rural District, Newton and Lake Counties;
Berns Constr. Co., 312 E. Washington St., Indianapolis 4, Ind., LB, **$1,415,107,** est. $1,637,802, 5.25 mi. U. S. 31 Rural District, Hamilton Co.; LB **$562,862,** est. $641,625 0.25 mi. State Road 100, near Indianapolis, Marion Co.;
Indiana Asphalt Paving Co., 2810 Columbia Ave., Indianapolis 18, Ind., LB, **$345,006,** est. $422,575 0.87 mi. State Rd. 37, Indianapolis, Marion Co.;
Rieth-Riley Constr. Co., Goshen, Ind., LB, **$142,424** est $167,999 0.38 mi. U. S. Rd. 12 ne. of Michigan City, La Porte Co. Bids Sept. 2. CD 8/13.

▲ **INDIANA**—State Hy. Comn., Indianapolis,
Wm. D. Vogel Constr. Co., 3760 E. St. Clair St., Indianapolis 19, Ind., CA, **$599,581,** est. $634,956 4.21 mi. State Rd. 67 near Indianapolis, Marion and Hendricks Counties;
Berns Constr. Co , 312 E. Washington St., Indianapolis 4, Ind., CA, **$801,743,** est. $961,749. 3.16 mi. U. S. Rd. 41, Rural District, Sullivan and Vigo Counties. Awarded Aug. 27.
Rieth-Riley Constr Co., Goshen, Ind., CA, **$625,298,** est. $713,427 2.73 mi. U. S. Rd. 52, Fowler, Benton Co., Awarded Aug. 18. CD 8/2, under LB.
Indiana Asphalt Paving Co., 2810 Columbia Ave., Indianapolis 18, Ind , CA, **$83,136,** est. $101,715 0.071 mi. State Rd. 32, Rural District, Madison Co. Bids July 27, awarded Aug. 17. CD 7/7.

▲ **States Improvement Co.,** 30 N. La Salle St., Chicago, Ill., LB, **$1,163,725,** reservoir and pumping station, Western Ave. Pumping Station, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Sept. 1. CD 8/19.
DiVito Constr. Co., 1925 N. Harlem St., Chicago, Ill. LB **$945,080,** water mains, sewer lines, NORTH LAKE, ILL City, Northlake, Ill. Bids Aug. 26.
Michigan Sewer Constr. Co., 21720 W. Eight Mile Rd., Detroit, Mich. CA **$786,000** Southfield outlet sewers, Contr. PW-256, DETROIT, MICH. City, Guardian Bldg., Detroit 26, Mich. CD 6/4, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fred C. Rowley & Sons,** 4732 Calumet St., Hammond, Ind., CA, **$1,344,976,** Washington High SCHOOL, auditorium and gymnasium, EAST CHICAGO, IND. School City of East Chicago, 4819 Magouin St., East Chicago, Ind. Bids July 26, awarded Aug. 31. CD 8/4, under LB.
Falander Building Co., 2231 Winton St., Indianapolis, Ind. Owner Builds, **$750,000.** group of HOMES, Falander Addn. in Speedway City, INDIANAPOLIS, IND.

▲ **Ragnar Benson, Inc.,** 4744 W. Rice St., Chicago 51, Ill., CA, **$5,000,000,** home electric appliance FACTORY, CHICAGO, ILL. Dormeyer Corp., Damen and Fullerton Ave., Chicago, Ill. Victor L. Charn, c/o contractor, archt. Awarded Aug. 25.
Campbell Lowrie Lautermilch, 400 W. Madison St., Chicago, 6, Ill., CA, **$600,000.** FACTORY addn., CHICAGO, ILL. Campbell Soup Co., 2550 W. 35 St., Chicago, Ill. Awarded Aug. 30. CD 11/6/52.
▲† **M. J. Boyle & Co.,** 2480 Elston St., Chicago, Ill., LB, **$1,588,362,** Central HEATING PLANT, AUTOMOTIVE SHOP, PAINT SHOP, Elwood Ordnance Plant, JOLIET, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Aug. 27. CD 8/3.
▲ **C. Hoffman & Co., Inc.,** 138 W. Randolph St., Chicago 1, Ill., Own Forces, **$5,500,000.** 500 RESIDENCES, McHENRY, ILL. Awarded Aug. 30.
▲ **J. W. Snyder Co.,** 307 N. Michigan St., Chicago 1, Ill., CA, **$2,000,000,** HIGH SCHOOL for Boys, NILES, ILL. Notre Dame Catholic High School, 1100 Forest Ave., Evanston, Ill. Bids Aug. 27, awarded Sept. 2. CD 8/19.
J. H. Findorff & Son, 601 W. Wilson St., Madison, Wis., LB **$543,397,** 7 story bsmnt., sub-bsmnt. 37x145 ft. BIO-CHEMISTRY BLDG., MADISON, WIS. Bd. Regents, University of Wisconsin, Madison, Wis. Bids Aug. 26. Law, Law, Potter & Nystrom, 121 S. Pinckney St., Madison, Wis., archts. CD 11/11/43.
Fritz Constr. Co., 138 N. Frances St., Madison, Wis., CA, **$715,524,** general contract, Crawford Heights SCHOOL, MADISON, WIS. Bd. Educ., 351 W. Wilson St., Madison, Wis. Bids Aug. 10. CD 8/17, under LB.
Precour Constr. Co., 1117 N. Bowen St., Oshkosh, Wis., LB, **$799,204,** general contract SEMINARY, ONEIDA, WIS. Sacred Heart Seminary, Oneida, Wis. Bids Aug. 24. CD 8/10.
Precour Constr. Co., 1117 N. Bowen St., Oshkosh, Wis., CA, **$558,379,** general contract, health and PHYSICAL EDUCATION BLDG., OSHKOSH, WIS. Bd. Regents of State College, Madison, Wis. Bids Aug. 11. CD 8/20, under LB.
▲ **Miller Homes, Inc.,** 4727 N. Woodward St., Royal Oak, Mich. Owner Builds. **$2,000,000.** 50 ranch HOMES Subdivision No. 7, Riverside and Fourteen Mile Rd., BIRMINGHAM, MICH.
▲ **Bruton Realty Co.,** (agent), 15100 Fenkell St., Detroit, Mich. Owner Builds. **$1,200,000.** Park Village Development 110 brick HOUSES, Huron-Clinton Parkway, Newburgh Rd., Ann Arbor Trail, LIVONIA, MICH.
Joseph Jaffa, 2289 National Bank Bldg., Detroit, Mich. Owner Builds. **$650,000.** Bridge Meadows Subdivision 60 brick HOUSES, West Rd., Bridge St., TRENTON, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

September 21 Iowa — September 22 Missouri
September 24 Kansas, Minnesota

STREETS AND ROADS

September 21 Iowa — September 22 Missouri
September 23, 24 Kansas — September 24 Minnesota

Okla., McAlester—BA 10/6—City, water main exten. **$980,000.** Rex Collins, McAlester, engr. CD 8/11/53.

BIDS ASKED—BUILDINGS

▲ **Neb., Omaha**—PLANT—BA 9/21—Central Fibre Products Co., Omaha Div., Quincy, Ill., fabrication plant. $1,000,000. Cecil Martin & Assocs., Karbach Block, archts. CD 6/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IOWA—State Road Comn., Ames,
Booth & Olson Inc., 529 Insurance Exchange Bldg., Sioux City, Ia., CA **$644,838** paving 13.427 mi. F-459 (3), Harrison, Pottawattamie and Shelby Counties. Bids Aug. 24, awarded Sept. 2. CD 8/30, under LB.
▲† **Donovan Constr. Co.,** 1725 Carroll Ave., St. Paul, Minn. and **Foley Bros.,** 900 New York Bldg., St. Paul, Minn., CA **$4,010,624,** powerhouse superstructure, switchyard and transformer yard, Gavins Point Reservoir, near Yankton, Inv. 25-066-54-158, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 17. CD 8/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Weitz Co., Inc.,** 406 Fleming Bldg., Des Moines, Ia., CA, **$2,000,000.** one story, 200,000 sq. ft. WAREHOUSE, NEWTON, IA Maytag Co., Newton, Ia. Brooks-Borg, 815 Hubbell Bldg., Des Moines, Ia., archts.
▲ **Geo. Sheaf & Co.,** 449 Neilston St., Columbus 3, O. CA **$1,629,163.** general contract;
Geo. R. Jorgensen Plumbing & Heating Co., 1420 Wabash St. Kansas City, Mo. CA **$468,869.** plumbing and heating contract, R. T. Coles Junior High SCHOOL 23 and Garfield Sts., KANSAS CITY, MO. Bd. Educ., c/o Dr. J. Dewey Smith, Library Bldg., Kansas City, Mo. Bids Sept. 2 CD 8/6.
▲ **Ralph M. Parsons Co.,** 10 E. 42 St., New York, N. Y. CA 14,000 bbl. per day ULTRAFORMING UNIT to produce high octane gasoline, SUGAR CREEK, MO. Standard Oil of Indiana, 910 S. Michigan Ave., Chicago 5, Ill.
▲ **Massman Constr. Co.,** 20 W. 9 St., Kansas City, Mo. LB **$3,145,000.** general contract 3 story, bsmnt., post OFFICE and PENTHOUSE, KANSAS CITY, KAN. Federal Builders, Inc., c/o contractor.
W. D. Barger Constr. Co., Miami, Okla., LB **$649,000.** CIVIC CENTER BLDG. and MUNICIPAL AUDITORIUM, MIAMI, OKLA. City, Miami, Okla. Caudill, Rowlett, Scott & Assoc., Stillwater, Okla., engrs. Bids Aug. 31. CD 8/10.
▲ **Oklahoma Gas & Electric Co.,** 321 N. Harvey St., Oklahoma City, Okla. Purchase and Hire. Approx. **$7,000,000,** est. $7,500,000. 100,000 kw. GENERATOR UNIT in the Mustang Power Plant, OKLAHOMA CITY, OKLA. Awarded Sept. 1. CD 8/19.
E. Eisenhauer, 1205 N. Tancahua St., Corpus Christi, Tex., CA **$616,000,** 72,000 sq. ft. brick, masonry, steel HIGH SCHOOL, concrete slab fdn., BEEVILLE, TEX. Beeville Independent School Dist., Beeville, Tex. Bids Aug. 18. CD 8/25, under LB.
▲ **Henger Constr. Co.,** Dallas Natl. Bank Bldg., Dallas, Tex., CA **$1,150,000.** 3 story, bsmnt. OFFICE, in Oak Cliff, DALLAS, TEX. Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, Tex. CD 1/19, under LB.
▲ **Rambo Constr. Co.,** Box 11245, Fort Worth, Tex., CA **$2,722,379,** Thomas Jefferson HIGH SCHOOL BLDG., UNITS, DALLAS, TEX. Dallas Independent School Dist., 3700 Ross St., Dallas, Tex. Bids Aug. 16. CD 8/24, under LB.
▲ **Farnsworth & Chambers Co.,** Inc., Box 74, Houston, Tex. LB **$2,349,100,** 3 story bsmnt. of Joskes area of main SHOPPING CENTER bldg.; LB **$1,812,900,** constr. foundation and main framing of superstructure of main bldg. only, HOUSTON, TEX. Gulfgate Shopping Center, c/o Theodore W. Berenson & Assocs., 50 Federal St., Boston, Mass., and Ben McGuire, Bankers Mortgage Bldg., Houston, Tex. Bids Sept. 2. CD 8/24.
▲ **Pat Hamar, Inc.,** Golden, Colo., Owner Builds, **$3,000,000** 350 frame RESIDENCES, west of S. Federal Blvd. and between W. Hampden and W. Oxford, SHERIDAN, COLO. C. E. Copeland, 9845 W. 37 Ave., Denver, Colo., engr. and archt.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

September 30 California

STREETS AND ROADS

September 29 California

▲ **Calif., Los Angeles**—BA 10/8—Los Angeles County Flood Control District, 2250 Alcazar St., Project 131, Northeast Storm Drain, Long Beach. $2,000,000. H. E. Hedger, c/o owner, engr. CD 11/7/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WASHINGTON**—State Hy. Comn., Olympia,
Peter Kiewit Sons' Co., Box 491, Longview, Wash., CA, **$1,328,367,** steel-truss bridge with rein.-con. T-beam approaches over Skagit River on Primary State Hy. No. 1, Skagit Co. Bids Aug. 31, awarded Sept. 1. CD 9/3, under LB.
▲ **CALIFORNIA**—State Div. Hys., Sacramento,
Granite Constr. Co., Box 900, Watsonville, Calif., LB, **$113,240,** surf. 11.5 mi. Amador Co.; LB, **$653,014,** grade, surface 1.8 mi. and widening bridge Stanislaus Co.;
Mercer-Fraser Co. & Mercer-Fraser Gas Co., 2 and Commercial Sts., Eureka, Calif., LB, **$97,520** restore embankments, surf. etc., Humboldt Co.;
Del E. Webb Constr. Co., P.O. Box 4066, Phoenix, Ariz., LB, **$105,528,** grade, surface 2.9 mi. San Luis Obispo Co.;
Ukropina-Polich-Kral and John R. Ukropina and Maddona Constr. Co., P.O. Box 105, San Gabriel, Calif., LB, **$1,923,764,** grade, pave 4.1 mi. and 6 bridges Santa Barbara Co.;
Frederickson Bros., 1259 65 St., Emeryville, Calif., LB, **$69,860,** surf. 1.4 mi. Solano Co. Bids Sept. 1. CD 8/16.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Union Electric Light & Power Co.,** Water St. W., St. John's, Newfoundland, Own Forces, **$1,000,000.** power plant and dam, Bonavista Peninsula, TRINITY BAY, NEWFOUNDLAND. CD 12/2/52, under Industrial Buildings.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **C. H. Whitham, Ltd.,** 10570 113th St., Edmonton, Alta., CA **$3,250,000.** concrete, steel, brick department STORE, EDMONTON, ALTA., Rupertsland Trading Co. Ltd., Hudson's Bay House, Winnipeg, Man. Moody & Moore, 295 Broadway Ave., Winnipeg, Man., archts.
▲ **D'Amours & Freres Ltd.,** 2633 Bourbonniere Ave., Montreal, Que., LB, **$4,500,000,** ADMINISTRATION HEADQUARTERS, Sherbrooke St. E., MONTREAL, QUE. Montreal Catholic School Comn., 117 Ste. Catherine St. W., Montreal, Que. Bids Aug. 31. CD 8/12.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

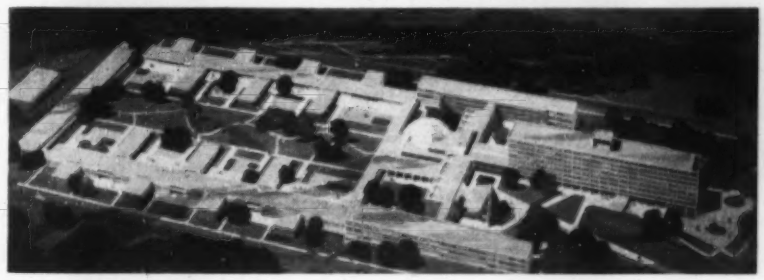
▲† **Peter Kiewit Sons' Co.,** 1300 Aloha St., Seattle Wash., LB **$1,287,423,** 74,640 ft. water mains, two wells, chlorinator, pump station, etc. Proj. Aaa 50-A-169, FAIRBANKS, ALASKA. Alaska P. Wks., Dpt. Interior, 123 St., Juneau, Alaska. Bids Aug. 25. CD 8/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Grove, Shepherd, Wilson & Kruge, Inc.,** 400 Madison Ave., New York 17, N. Y. LB **$1,581,592,** est. $1,716,827, 160,000 sq. ft. rein.-con. and masonry general WAREHOUSE with railroad spur and outside utilities, ENG. 95-507-55-5, FORT RICHARDSON, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Sept. 7. CD 8/20.

(Proposal Advertisements see pp. 99 to 101)



PITTSBURGH HOSPITAL will have eight-, three- and two-story units.

$18.6 million hospital for chronically ill, Pa.

Eleven contracts totaling $18,585,000 were awarded by the Allegheny County Institution District of Pennsylvania for construction of an unusually designed, multiple-building hospital in Scott Township, Pittsburgh. Mitchell & Ritchey and Button & McLean, both of Pittsburgh, are architects on the job. Harry L. King is resident engineer.

The plan has three main parts: eight-story general hospital for bed-fast patients; three-story "H" semi-ambulant section; two-story ambulant section. On the ground level with easy access to walks, auditorium and chapel, will be 200 semi-ambulant and 1,000 ambulant patients. Buildings are steel and reinforced concrete, with facing of brick, terra cotta and aluminum.

Also provided on the grounds is a power house, shop and maintenance building, nurses' and attendants' quarters, eight residences for staff, electrical sub-station and greenhouse.

Less than 0.3% separates the two low bids of six for the general contract. Sherry-Richards Co. of Chicago bid low at $13,349,300, just $39,700 under Ragnar Benson Inc.

Work under the general contract started in July, is allowed 730 calendar days.

Contractors agree to do additions to, or allow credit for deductions from, the units of work as now shown on the contract plans as follows:

Total cost of the hospital, movable equipment not included, was distributed:

Total cost	18,584,508	100.0%
Includes	**Cost**	**% of total**
General contract	$13,349,300	71.9
Laundry equipment	192,528	1.0
Food service equipment	366,300	2.0
Plumbing work, interior	1,197,600	6.4
exterior	400,000	2.2
Heat, vent, air cond: interior	1,224,000	6.6
exterior	20,000	0.1
Electrical work, interior	811,000	4.4
exterior	414,000	2.2
X-ray equipment	44,289	0.2
Fixed hospital equipment: case, cabinet, met sink, el "EC" sterilizer, oper light, oper & autop table, el "ES"	70,800	0.4
	41,999	0.2
Refrig spaces (walk-in), food track equip & refrig system	91,000	0.5
Elevators & dumbwaiters	339,516	1.8
Auditorium & chapel equipment	22,196	0.1

Bidders include:

General contract

1C	Sherry-Richards Co., Chicago, Ill	$13,349,300
2	Ragnar Benson Inc., Chicago, Ill	13,389,000
6	Ring Constr. Corp., Minneapolis, Minn.	14,803,805

Bids: 5-18-54 Item	Unit	Marginal Unit Allowances Extra Credit 1C	Extra Credit 2		
Exc, uncl	cy	$5.00	$1.75	$25.00	$3.00
Backfill (borrow only)	cy	6.75	2.50	4.00	2.00
Fill gravel	cy	7.90	3.50	10.00	4.00
Forms, wood	sf	0.65	0.30	1.50	0.45
metal	sf	0.75	0.35	1.50	0.45
Conc el 2	cy	29.00	12.45	25.00	13.88
2-B	cy	28.00	11.90	25.00	13.88
3A	cy	27.00	11.65	25.00	13.40
fill—shot gravel	cy	37.75	17.50	50.00	20.00
pea gravel	cy	37.75	17.50	50.00	20.00
vermiculite	cy	42.90	20.00	60.00	30.00
prest slab	sf	2.00	0.72	2.00	0.80
Steel, struct	ton	300	168	275	200
reinf	ton	205	152	254	162
Brick, common	Mbk	150	75.00	0.99	0.61
face, A	sf	1.60	0.95	1.61	0.99
B	sf	4.62	2.70	5.00	3.08
C	sf	1.80	1.00	1.75	1.08
Cement block 4x8x16"	sf	0.69	0.44	0.67	0.41
8x8x16"	sf	0.80	0.53	0.95	0.59
Cinder block 4x8x16"	sf	0.64	0.39	0.64	0.38
8x8x16"	sf	0.74	0.46	0.91	0.55
Struct tile units 4"	sf	0.41	0.24	2.04	1.25
clear glaze	sf	2.05	1.15	2.01	1.22
ceramic	sf	2.10	1.25	2.04	1.25
salt glaze	sf	1.20	0.55	1.96	1.17
Tile, matt glaze	sf	2.30	2.04	2.35	1.70
mosaic ceramic	sf	4.00	3.00	4.00	3.50
ceramic floor	sf	1.90	1.60	2.00	1.50
Quarry	sf	1.45	1.30	1.60	1.10
Waterprf, 3-ply	sf	0.45	0.30	0.30	0.12
5-ply	sf	0.55	0.40	0.50	0.18
2 coat, asph	sf	0.25	0.10	0.10	0.03
Dampproof	sf	0.15	0.08	0.10	0.03
Caulking	lf	0.12	0.05	0.20	0.08
Furring	lf	0.60	0.15	0.50	0.15
Lathing	sy	1.80	0.70	1.50	0.70
Plaster, Keene's Cement	sy	2.80	1.70	2.80	1.70
high strength	sy	2.80	1.70	2.80	1.70
gypsum	sy	2.40	1.40	2.40	1.40
cement	sy	3.70	2.30	3.70	2.30
Terrazzo floor	sy	1.56	1.10	4.00	1.10
base	lf	3.50	2.50	2.85	2.50
Asph tile floor	sf	0.12	0.07	0.20	0.12
base	lf	0.15	0.08	0.17	0.10
Rubber tile floor	sf	0.29	0.23	0.58	0.52
base	lf	0.17	0.10	0.30	0.27
Cork tile floor	sf	0.40	0.28	0.65	0.55
Linoleum	sf	0.18	0.10	0.50	0.20
Fine grading	cy	0.05	0.02	10.00	2.00
New lawn w 6" topsoil	sy	0.55	0.35	1.20	0.70
French drains	lf	6.00	3.00	10.00	3.00
Rd base & surface	sy	4.15	2.65	5.20	3.00
Walk paving I	sf	1.05	0.55	0.80	0.60
II	sf	1.15	0.65	0.90	0.72
III	sf	0.95	0.45	2.30	1.70
Chain link fence 4'	lf	2.20	1.60	2.50	1.50

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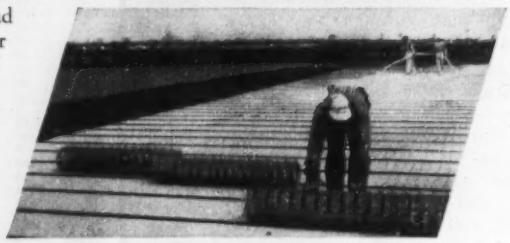

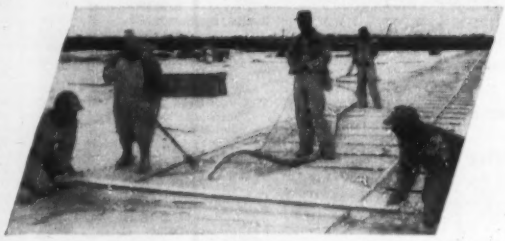

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The autumn flood of financing

Inspired mostly by turnpikes, Wall Street's bond schedule suggests busy years are ahead for heavy construction

After a quiet summer, Wall Street is getting ready to handle a tremendous volume of construction financing by state and local government agencies.

The parade of king-sized issues began this week with a $136-million issue by 14 local housing authorities, the eleventh in a series of offerings that started in 1951.

Next on the schedule is a $160-million offering on Oct. 1 by the Kansas Turnpike Authority to finance its 236-mi turnpike. Contracts for the work will probably be let by December.

On Oct. 14 the Virginia Tunnel Revenue Authority plans to sell about $100 million worth of bonds to finance a tunnel under Hampton Roads and a bridge over the Rappahannock River.

Sometime soon the Oklahoma Turnpike Authority will borrow $230 million for about 300 mi of toll roads.

In Texas, there is about $400 million worth of possible financing, including $52 million for a 40-mi road between Dallas and Ft. Worth, $200 million for the proposed 250-mi Sam Houston Turnpike from a point near Dallas to San Antonio, and $150 million (which will probably turn out to be much more) for a 450-mi toll road starting above Dallas and going to Houston and Corpus Christi. The two private companies backing these two last-named projects have been held up by a court decision that their turnpike property would be subject to local property taxes. The case is now being appealed to the Texas Supreme Court. Unless actual construction starts by Feb. 25, 1955, both private companies are scheduled to lose their franchises.

• **Other 1954 possibilities**—There are plenty of other financing possibilities this year, including:

$155 million for the Baltimore tunnel under the Patapsco River.

$583 million, possibly to be borrowed in blocks, to finance five different projects for the Illinois Toll Road Authority.

$315 million by the New York State Power Authority to finance the St. Lawrence River power project in conjunction with Canada.

$50 million to continue construction of the 427-mi New York Thruway; $550 million worth of bonds has already been sold.

$100 million to continue financing of the Connecticut Expressway; an initial $100-million block was sold this spring.

$50 million to complete financing of the Garden State Parkway.

$26 million to finance widening of lanes on the New Jersey Turnpike.

$57 million for the 35-mi project between Richmond and Petersburg.

$225 million for the North-South Indiana Turnpike.

$60 million for the Mississippi River Bridge Authority to build a bridge over the river at New Orleans, plus about $30 million for connecting expressways.

• **$2½ billion**—All this, plus a few smaller issues not mentioned, adds up to somewhere in the neighborhood of $2½ billion. Probably quite a few of these possible financings will be postponed into 1955. Even if Wall Street's mechanical facilities could handle such a tidal wave—which is doubtful—investors might easily become more choosy about what they bought. That would push up the interest charges on some issues to a point where they might be postponed temporarily until the bond market grew less congested.

Finally, not all of this money will be spent for actual construction, by any means. Substantial amounts will go for land acquisition, engineering fees, financing expenses, and interest charges to carry the debt until the facility is producing revenue.

• **And $11 billion more**—However, it's very cheerful to note that according to the schedule of possible revenue bond issues kept by the Wall Street firm of Tucker, Anthony & Co., there is still a potential volume of almost $11 billion in public works projects, after deducting the $2½ billion worth of projects that will be coming up in the next few months.

Business plans less capital spending

Government estimates suggest a slight drop in private spending during fourth quarter for plants and equipment

Government estimates on business capital spending for the fourth quarter are not as optimistic as reports on other phases of business activity.

The Securities & Exchange Commission and the Commerce Dept. said last week that the figure spending for plants and equipment will drop to annual rate of $26 billion during the last quarter of 1954. For the third quarter, they estimate spending is running at an annual rate of $26.8 billion.

• **Doesn't jibe**—This slight decline doesn't jibe with other predictions that the U.S. economy has already touched the bottom of the business "readjustment" and is on its way up. However, these quarterly estimates are not always dependable—particularly fourth-quarter estimates.

Over the years, businessmen have shown a tendency to increase actual fourth-quarter capital spending over what they had previously predicted. What happens is that businessmen, once they are fairly sure of their profit position for the year, are apt to beef up their capital spending programs if profits are good. So who knows what they will actually spend?

• **Cross-check coming**—The government estimates are based on surveys during August. Within six to eight weeks, McGraw-Hill will provide a check on the government figures when its Economic Department publishes a fall forecast on 1955 capital spending.

The government estimate doesn't indicate how much of the fourth-quarter spending will go for plant and how much for equipment. But experts figure that about half the total would go to modernization.

The decline in capital spending this year compared with 1953 is mostly among the manufacturers of durable goods. An 11% drop there is largely accounted for by the primary metal industries and by non-electrical machinery manufacturers. Railroad spending is off sharply, and there are substantial declines in programs by Textile, Chemical, and Rubber companies.

(B & F continued on page 94)

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to towers

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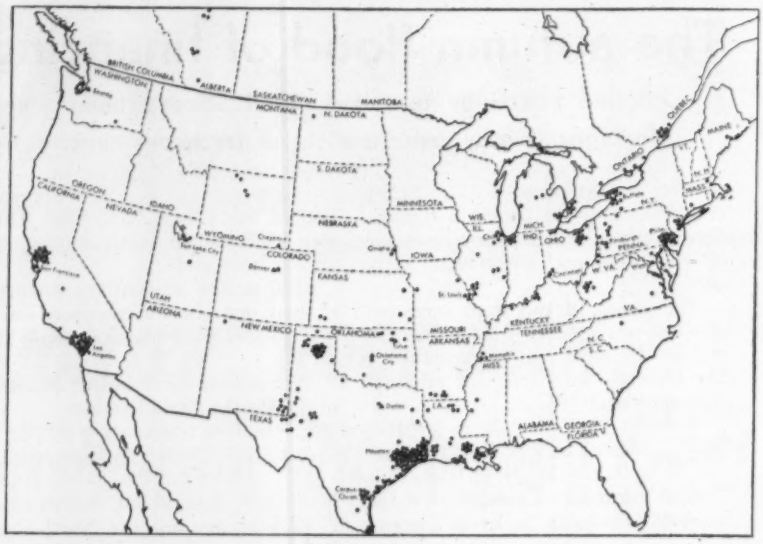


PETROCHEMICAL PLANT PATTERN—Most of these plants cluster close to oil and natural gas fields. Map is reproduced from Petroleum Processing.

THE LONGER LOOK:

There's plenty of future business for contractors in building plants for the fast-growing petrochemical industry

Though the fame of the State of Texas is far-flung, most non-Texans would be surprised to learn that for the past few years it has led all other states in contract awards for industrial buildings. One big reason for this boom: the fast-growing petrochemical industry, whose major raw materials are oil and natural gas, two things which Texas can supply in enormous quantities.

Of 322 petrochemical plants now operating, building, or planned in the U. S. and Canada, Texas accounts for almost a third (map). That's one of the main reasons why the Texas share of ENR's industrial awards was 15% in 1951, 20% in 1952, 12% in 1953, and about 15% so far this year.

Among other areas whose fast growth has been aided by the petrochemical industry are the Delaware Valley (ENR June 3, p. 30), the so-called "Chemical Shore" along Lake Erie east of Cleveland (ENR May 14 '53, p. 152), the "Niagara Frontier" around Buffalo, N. Y., and the Chicago, Los Angeles, San Francisco, and New Orleans metropolitan areas (map).

• **Business ahead**—There's plenty of construction business ahead in petrochemicals in many parts of the U. S., in contrast to tapering off of expansion plans by some other industries.

New plants now in the building or planning stage in the U. S. and Canada total 41, according to a survey by Petroleum Processing, a McGraw-Hill publication. Estimated investment involved is nearly $555 million. And the survey shows that another $175 million is scheduled to be spent on 34 expansion projects at existing plants.

The growth of petrochemicals has been so rapid that no standard definition of the term has taken firm hold. One of the most widely accepted is that suggested by Petroleum Processing.

> "Petrochemical, n: a chemical compound or element recovered from petroleum or natural gas or derived in whole or part from petroleum or natural gas hydrocarbons, and intended for chemical markets."

This definition, which excludes fuels and asphalts and materials used by the petroleum industry itself as blending agents, draws objections from many chemists because it identifies petrochemicals solely in terms of source. "Petrochemical" ammonia is chemically no different from ammonia

made from coal. And classical scholars don't like the use of a Greek root meaning "stone" to describe chemicals made from oil and gas.

Petrochemicals go back some 35 years in the laboratory stage, but they have been important in production figures only since the early 1940's. Last year's output was a record 25.3 billion pounds, representing 22% of total United States production of chemicals by weight. The value of petrochemical sales by manufacturers in 1953 was $3 billion, almost half the $6.14 billion value of all chemicals.

Production of petrochemicals has been mounting at the rate of roughly 15% annually in recent years. By 1965 it will cover half the output of the entire chemical industry. These estimates, supplied by Dr. R. L. Bateman of Carbide and Carbon Chemicals Company, are endorsed by experts in both the oil and chemical industries.

Among the foremost petrochemicals are these familiar chemicals: alcohols, benzene, ammonia, carbon black, acetone, aniline, styrene and sulfur. As the technology developed, petroleum and natural gas have replaced agricultural products and coal as sources of many leading industrial chemicals. Petrochemicals have offered ample, assured supplies of basic raw materials, and lower, more stable prices. Hydrogenation may in time promote a return to coal as a source for some of these chemicals. But petrochemicals appear certain to gain an increasing share of the chemical market.

One reason why continued rapid expansion of petrochemical facilities is inevitable is the large number of "growth" products using petrochemicals. These include plastics, synthetic fibers, synthetic rubbers, detergents, nitrogen products, and automotive chemicals. According to a forecast by the Standard Oil Development Company, the demand for petrochemicals for use in plastics alone in another 20 years will exceed the entire present output of the industry.

City spending keeps rising, says Commerce Dept. survey

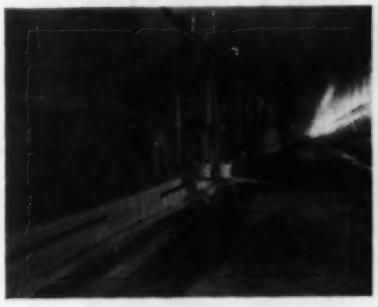
Large U. S. cities are still spending more money, collecting more money, and borrowing more money each year. That's the conclusion of a Commerce Dept. study of the 481 largest cities, which are responsible for the bulk of municipal financing.

In 1953, says Commerce, the 481 cities took in almost $7.1 billion, spent

(Continued on page 96)

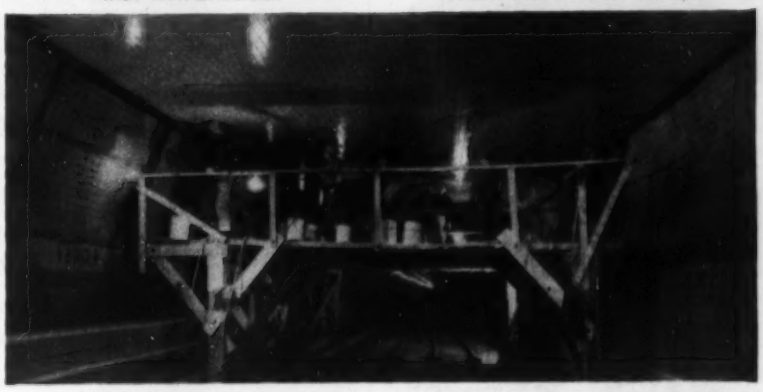
Underneath the River!

THORITE Patching Mortar Crew at work in Air Tunnel under East River, New York.



Sealing Leaks in Traffic Tunnel with WATERPLUG.

Sealing Drain Pipe Channels in Tunnel with WATERPLUG.



WATERPLUG Crew at work, before placing of tile lining, Battery Tunnels, East River, New York.

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in all three categories. These figures apply only to city government finances; do not include any important separate agencies such as school districts.

Total outstanding debt of the 481 city governments was $11.3 billion at the beginning of 1954—a rise of $730 million in a year.

As you might expect, the cities place schools and highways at the top of their list of financial headaches. School officials race to keep building space ahead of rising school populations.

Street repairs once planned for the 1940's still remain to be done in many places, and there are many miles of new streets to be put in.

GM's new crawler

Euclid Division unwraps its powerful new tractor

Ever since General Motors Corp. got into the earthmoving equipment industry with both feet last year by acquiring Cleveland's Euclid Road Machinery Co., other equipment makers have been figuring what GM's first move would be.

It was obvious that GM's Euclid Division needed a crawler tractor to fill out the combined Euclid-GM line of earthmoving equipment. It's estimated that more than half the earth moved on projects is done by crawlers. What GM did not have in its line of trucks was filled out when it picked up Euclid. It also acquired EUC's new power scraper.

•Clear crystal ball—The prophecies turned out to be correct. This week at Cleveland, GM unveiled its new tractor—a big, twin-engine job, one of the most powerful yet seen. It also announced that it had transferred a 480,000-sq ft Cleveland plant from its Electro-Motive Division to the Euclid Division. That doubles EUC's capacity, and suggests that GM hopes it eventually will have a big market for the crawlers.

The tractor show this week—the TC-12 Twin Crawler—is to be the first of a line of tractors which GM-Euclid plans to meet requirements in earthmoving, open pit mining, logging, and industrial work. GM expects a big export market on earth-moving equipment from its lake-side Cleveland plants.

Other major producers of big crawlers: Allis-Chalmers Mfg. Co., Caterpillar Tractor Co., International Harvester Co., and Oliver Corp.

Post-strike prices

End of strike has mixed effects on lumber, plywood

The lumber strike which has crippled the Pacific Northwest since June 21 is virtually at an end.

That hasn't had much effect on Oregon lumber prices, which remain firm. Washington lumber prices are being brought into line with the lower Oregon schedule. However, during the past few days two major plywood manufacturers—M&M Woodworking Co. and U. S. Plywood Corp.—have lowered prices on the key ¼-inch grade from $90 to $85 mftbm. Some other firms are already charging $85.

In Oregon, green lumber prices are firm, with No. 2 and better green fir dimension selling at around $68 and $70. With the settlement, increased production of green lumber is being offset by cutbacks of some southern Oregon mills that have been on two or three shifts and overtime. Retail yard inventories are down.

The Oregon kiln-dried market, dominated by the big operators who were closed by the strike, is heavily booked with orders. Prices are firm. Most mills report no surplus and a 60-day order file.

In Washington, however, lumber prices have dropped as much as $7.50 per mftbm on 2x4's in carload lots at Seattle, which made the price about $77.50. At the mills, prices go below $70.

Business briefs . . .

• August estimates by the Depts. of Commerce and Labor of construction put in place made a new August record of $3.6 billion—up 8% over the previous year, and 3% above July. For the first eight months, construction in place totaled $23.7 billion, which is a 4% gain over the 1953 period.

• Cement prices in Eastern Seaboard states are expected to stay stable in the fourth quarter. Lehigh Portland Cement Co. has just issued its fourth-quarter price list, with only one boost instead of the general rise some observers expected. Other producers are expected to go along with Lehigh.

• Fix-up market—Homeowners spent $3 billion on materials, tools, and labor in fixing up and enlarging their homes, during the first five months of this year, according to a Census Bureau survey, the first of its kind.

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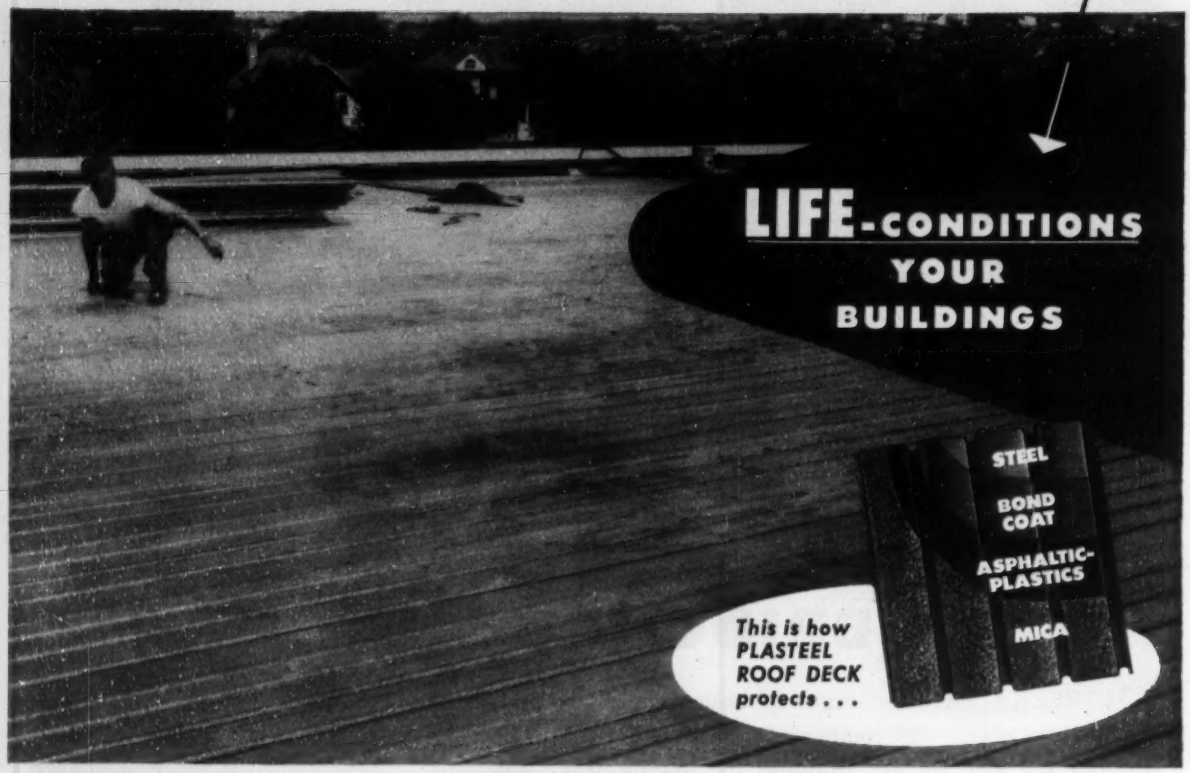

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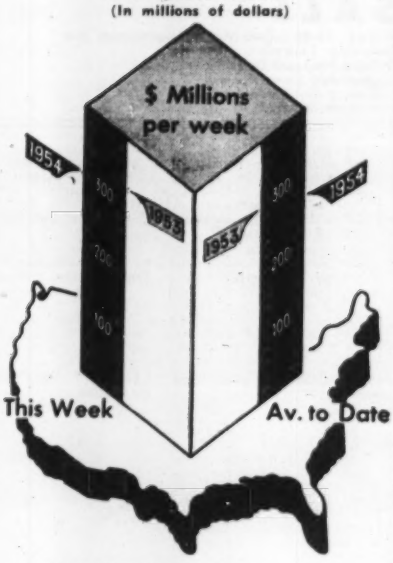
Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 37 wks 1954	1953	% chge
Federal	$20.5	$883.3	$1,117.8	−21
State and municipal	100.7	3,500.1	3,543.1	−1
Total public	121.2	4,383.4	4,660.9	−6
Total private	185.2	5,870.0	6,213.4	−6
U. S. total	$306.4	$10,253.4	$10,874.3	−6

Contracts by type of work

Waterworks	$3.9	$159.7	$175.0	−9
Sewerage	7.2	270.3	289.2	−7
Bridges	19.1	360.7	476.0	−4
Highways	37.5	1,332.8	1,284.5	+4
Earthwork, waterways	7.4	199.0	296.2	−33
Buildings:				
Public, excl. hsg.	27.3	1,256.9	1,210.6	+4
Housg., public	6.3	173.3	315.7	−45
Housg., private	72.4	3,052.3	2,629.2	+16
Commercial	59.3	975.0	870.5	+12
Industrial	45.0	1,368.1	1,978.7	−31
Unclassified	21.0	1,105.3	1,348.7	−18
Total	$306.4	$10,253.4	$10,874.3	−6

NOTE: Minimum size projects included are: Waterworks and waterways, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)

	Week of Sept. 9 1954	Cumulative 36 Wks 1954	% chge '53-'54
Corporate securities	...	$2,061.0	−37
State and municipal:			
All except housing	$72.7	3,690.6	+24
Housing	...	91.0	−57
Federal loans	1.3	82.2	−3
Federal aid	...	673.0	−13
Total non-federal	$70.4	$6,597.8	−10
Federal appropriations:			
In U. S.	...	$2,073.3	+32
Outside U. S.	...	33.2	+15
Total new capital	$70.4	$8,704.3	−2

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	9/7	640.60	307.94	134.29
	9/2	640.68	307.97	134.31
Building cost	9/7	454.54	245.71	129.21
	9/2†	454.28	245.57	129.13
Volume	Aug.	525	213	152
	July	547	222	158

† Official ENR index for September

OFFICIAL PROPOSALS

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF HIGHWAYS, RICHMOND, VIRGINIA, September 7, 1954. Sealed Bids will be received at the Department of Highways, Room 400, Central Highway Office Building, 1221 E. Broad Street, Richmond, Virginia, until 10:00 A.M., Eastern Standard Time, Friday, October 8, 1954, for the construction of:

Contract No. C-1, Hampton Roads Tunnel, Portal Islands and Dredging.

Estimated Unit Quantities:

2,700,000 Cu. Yds. Dredging; 1,219,600 Cu. Yds. Excavation; 1,650,000 Cu. Yds. Hydraulic Fill; 55,000 Cu. Yds. Rip Rap; 26,500,000 Lbs. Structural Steel; 139,000 Cu. Yds. Concrete; 3,600,000 Lbs. Reinforcing Steel; 373,000 Lbs. Miscellaneous Metals; Electrical Work; Water Service Drainage Piping; Ventilation System and Survey Control Towers. Estimated Length of Tunnel and Portals, Approximately 7,000 Feet. Includes 23 Precast Tube Sections.

Contract No. C-2, North and South Approach Bridges.

Estimated Unit Quantities:

37,800 Cu. Yds. Embankment; 43,000 Lin. Ft. Precast and Prestressed Concrete Piles; 2,500 Lin. Ft. Cast in Place Piles; 63,100 Lin. Ft. Untreated Timber Piles; 21,290 Cu. Yds. Concrete; 896 Prestressed Concrete Beams—50 Ft. Spans; 1,645,000 Lbs. Reinforcing Steel in 50 Ft. Spans, except for prestressed concrete; 418,000 Lbs. Miscellaneous Metals—50 Ft. Spans; 10,495 Cu. Yds. Rip Rap.

Contract C-2—Alternate No. 1, Structural Steel Stringer Construction for 80 Foot Spans.

Estimated Unit Quantities:

3,220 Cu. Yds. Concrete in Deck, Safety Walks, Parapets; 1,150,000 Lbs. Reinforcing Steel; 3,640,000 Lbs. Structural Steel and 6,340 Lbs. Miscellaneous Metals.

Contract C-2—Alternate No. 2, Prestressed Concrete Beam Construction for 80 Foot Spans.

Estimated Unit Quantities:

3,570 Cu. Yds. Concrete in Deck, Safety Walks, Parapets and Diaphragms; 1,065,000 Lbs. Reinforcing Steel, except for Prestressed Concrete; 261 Prestressed Concrete Beams and 131,000 Lbs. Miscellaneous Metals.

If the bidder elects to submit a bid for the combination of Contract No. C-1 and Contract No. C-2, such bid will be rejected if it is not accompanied by separate Bids for each of the two component Contracts.

Prespective bidders will meet the Virginia Department of Highways Representative at the Chamberlin Hotel, 10:00 A.M., Eastern Standard Time, September 14, 1954, to be shown over the location of proposed work.

Cost of plans: Tunnel $50.00; Bridges $30.00; Specifications $5.00 each. No refund.

Plans and Specifications are on file at the Richmond Office; Director of Ferries, Norfolk, Virginia and Parsons, Brinckerhoff, Hall and MacDonald Engineers, 51 Broadway, New York 6, New York.

Proposal Guaranty: Contract C-1: A certified or cashier's check, made payable to the Commonwealth of Virginia, in the sum of not less than one per cent (1%) of the aggregate amount of the Bid, except that the certified or cashier's check need not exceed One Hundred Thousand Dollars ($100,000.00). In addition to the above, the bidder shall furnish a Proposal Bond made payable to the Commonwealth of Virginia, in an amount of not less than twenty per cent (20%) of the aggregate bid. Such Bond shall be executed on the form furnished by the Department and shall meet all the requirements of the State of Virginia. This Proposal Bond shall be signed by a local resident agent.

Contract C-2: A certified or cashier's check made payable to the Commonwealth of Virginia in the sum of not less than one per cent (1%) of the aggregate amount of the Bid, except that the certified or cashier's check need not exceed Sixty Thousand Dollars ($60,000.00). In addition to the above the bidder shall furnish a Proposal Bond made payable to the Commonwealth of Virginia in an amount of not less than twenty per cent (20%) of the aggregate bid. Such Bond shall be executed on the form furnished by the Department and shall meet all the requirements of the State of Virginia. This Proposal Bond shall be signed by a local resident agent.

Combination Bid—Contracts C-1; C-2: The amount of the certified or cashier's check need not exceed One Hnudred and Fifty Thousand Dollars ($150,000.00). The amount of Bid Bond shall be twenty per cent (20%) of the aggregate amount of the combined bid. Contractors must have on file approved prequalification papers prior to receiving proposals. The Commission reserves the right to reject any or all proposals submitted in response to this advertisement, and to waive technicalities as it may deem best for the interest of the State.

Plans will not be mailed prior to receipt of payment of Cost shown in this advertisement.

Bids: September 28, 1954

Massachusetts Turnpike Authority

NOTICE TO CONTRACTORS

Sealed proposals for the Superstructure Steelwork of a bridge over the Connecticut River between the Town of West Springfield and City of Chicopee (Contract No. 51-060) will be received at the office of the Secretary-Treasurer, Massachusetts Turnpike Authority, Room 1201, 80 Boylston Street, Boston 16, Massachusetts until 10:00 A.M. (E.D.S.T.) of Tuesday, September 28, 1954, and immediately thereafter will be publicly opened and read in the Adams Room on the lobby floor of the Hotel Touraine across the street from the Turnpike Authority's offices.

Proposal guaranty: $50,000.

Charge for plans and proposal forms: $10.00, not refundable. Complete information at said office of the Authority and at office of General Consulting Engineer to Authority; Howard, Needles, Tammen & Bergendoff, Room 1146, 80 Boylston Street, Boston 16, Massachusetts. Minimum wage and dump truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work.

By: WILLIAM F. CALLAHAN, Chairman

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4248) will be received at Superior, Nebraska, until October 7, 1954, for furnishing labor and materials for earthwork, structures and surfacing; relocation and detour of County Roads for Lovewell Dam; including concrete conduit, Courtland Canal Station 1836+19 to Station 1839+45, Bostwick Division, Nebraska-Kansas, Missouri River Basin Project. Location near Lovewell, Jewell County, Kansas. Principal items are: 13,600 cu. yds. excavation for roadway; 9000 cu. yds. excavation for structures; 365 cu. yds. concrete; furnishing and laying 332 lin. ft. of 18", 24" and 30" corrugated metal pipe; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4247) will be received at Sargent, Nebraska, until October 13, 1954, for furnishing labor and materials for Milburn Diversion Dam and Sargent Canal, Station 12+30 to Station 38+80, Sargent Unit, Middle Loup Division, Missouri River Basin Project, Nebraska. Location near Sargent, Nebraska. Principal items are: 110,000 cu. yds. excavation; 73,000 cu. yds. zoned embankment; 1,700 cu. yds. concrete in structures; 79,000 lbs. steel sheet pilings; 51,500 lbs. radial gates and miscellaneous metalwork; and other work. Completion time 540 days. For particulars, address Bureau of Reclamation, Sargent, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

Bureau of Reclamation, North Platte River District 83154-P3, Casper, Wyoming. For Immediate Release September 2, 1954. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-354 for furnishing labor and materials and performing all work for earthwork, buried asphaltic membrane lining, and structures, Fort Laramie Canal, Station 2070+00 to Station 2128+00 and Station 2925+00 to Station 2996+29, North Platte Project, Wyoming-Nebraska, will be mailed to Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, October 7, 1954, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: R. J. Walter, Jr., Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $1.00 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States. I. J. Matthews, District Manager.

(Continued on page 100)

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

(Continued from page 99)

Bids: September 30, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 30th day of September 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
DISTRICT No. 3, William Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y.						
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.						
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester, Rockland, Orange, Ulster, Greene, Albany, Schenectady, Montgomery, Herkimer, Oneida, Madison, Onondaga, Cayuga, Seneca, Ontario, Monroe, Genesee, and Erie	T.U.B. 54-2	New York State Thruway—Hudson-Catskill-Mohawk and Ontario Sections (Toll Plazas)	....	Emergency Generator Facilities and Canopy Signs at 40 Interch. or Barriers	$18,000 Plans $10	$320,000
DISTRICTS 1, 2, 8 Rockland, Orange, Ulster, Greene, Albany, Schenectady, Montgomery; Herkimer, Madison, Oneida	T.T.S. 54-2	New York State Thruway—Hudson-Catskill and Mohawk Sections	....	Furnishing and Installing Roadside, Delineators	$8,000 Plans $10	145,000
N.B.—Plans and Proposals for the Above 2 Contracts Will Be Distributed Only From Our Albany and New York City Offices—But Will Be Exhibited for Examination at Our District 1, 2, 3, 4, 5 and 8 Offices Where Work is Located.						
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Madison and Oneida	M.T. 54-6	New York State Thruway—Mohawk Section—Subs. 1, 2, 3, 4 and 5	6.82	36,000′ Cattle Fencing	$1,800 Plans $10	32,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester	FANETC 54-2	New York State Thruway—New England Section—Sub. 2 (North Ave. Drain) Proj. FI-1068(2)	0.49	Drainage and Misc. Work	$28,000 Plans $10	512,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: October 6, 1954

Indiana Toll Road Commission

NOTICE TO BIDDERS

Contract C-22
Contract C-23
Contract C-22 and C-23

Sealed proposals will be received by the Indiana Toll Road Commission at or before 10:00 A.M., Central Standard Time, October 6, 1954 for the performance of each of the contracts enumerated above.

Contract No. C-22

The grading, drainage, structures and paving of approximately 3.9 miles in Construction Section C-22 of the Indiana East-West Toll Road beginning at a point about 413 feet west of Johns Road at Toll Road Centerline Station 3020+00 in LaPorte County and extending eastwardly to a point about 1,398 feet east of the centerline of the North track of the Chicago, South Shore and South Bend R.R. at Toll Road Centerline Station 3225+00 in LaPorte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	755,000 Cu. Yds.
Borrow	145,000 Cu. Yds.
10′ Reinforced Concrete Pavement	115,000 Sq. Yds.
Culvert Pipes and Underdrains	10,755 Lin. Ft.
Cast-in-Place Concrete Piling	8,800 Lin. Ft.
Concrete for Structures	2,990 Cu. Yds.
Reinforcing Steel	482,600 Lbs.
Fabricated Structural Steel	1,130,000 Lbs.

Contract No. C-23

The grading, drainage, structures and paving of approximately 4.5 miles in Construction Section C-23 of the Indiana East-West Toll Road beginning at a point about 1,398 feet east of the centerline of the North track of the Chicago, South Shore and South Bend R.R at Toll Road Centerline Station 3225+00 in LaPorte County and extending eastwardly to a point about 1,917 feet east of Walker Road at Toll Road Centerline Station 3460+80 in LaPorte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	927,000 Cu. Yds.
10″ Reinforced Concrete Pavement	126,000 Sq. Yds.
Culvert Pipes and Underdrains	11,835 Lin. Ft.
Cast-in-Place Concrete Piling	6,750 Lin. Ft.
Concrete for Structures	2,510 Cu. Yds.
Reinforcing Steel	358,000 Lbs.
Fabricated Structural Steel	700,000 Lbs.

The work covered by Contract C-22 and C-23, which covers a combination of Construction Sections C-22 and C-23, is the construction as above described for the individual Construction Sections, taken together.

Copies of the Plans, Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are nonreturnable:

Standard Specifications for the Indiana East-West Toll Road	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross-Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Section, the Construction Section thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 10:00 A.M., Central Standard Time, October 6, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISION
Dr. Dillon Geiger
Chairman
Charles W. Keating
Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: October 11, 1954

Construction of Dam

INVITATION TO BIDDERS

Notice is hereby given that sealed bids for the construction of the Lake de Forest Dam will be received by the Spring Valley Water Works and Supply Company at their office in Spring Valley, New York, until two o'clock P.M. Eastern Standard Time on the eleventh day of October, 1954.

The work comprises furnishing materials and performing the labor for the construction of a gravity concrete dam and earth fill dam, roads and bridges.

The Instructions to Bidders, Specifications, Proposal, Contract and Bond, and Plans may be examined at said office or at the office of the Consulting Engineers, Buck, Seifert and Jost, 112 East 19th Street, New York City, and copies thereof obtained upon payment of fifty ($50.00) Dollars for each set. Any bidder, upon returning such set or sets within twenty (20) days after the date on which bids are received and in good condition, will be refunded his payment or else the entire deposit will be forfeited.

The work to be performed is divided into two (2) sections, under which the work is classified according to its character. The principal items of work are as follows:

SECTION A—The construction of a combined earth fill and gravity type dam consisting of a gravity concrete dam section about four hundred (400') feet long with a maximum height of about sixty (60') feet, an earth fill dam section about nine hundred and fifty (950') feet long, intake tower, two (2) fifty (50') feet long self-regulating spillway crest gates with control chambers and equipment and spillway bridge; relocation of about one thousand one hundred (1,100') feet of town road and the construction of a fifty (50') foot clear span bridge.

SECTION B—The construction in the reservoir area of about two and one-tenth (2.1) miles of county and town roads including culverts, permanent type pavements and guard railing.

Bids will be received for Section A only on October 11, 1954.

Bidders will be allowed to bid on one (1) or more sections.

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company in an amount equal to ten (10%) percent of the proposal. The certified check will be retained to pay for any damage or loss to the Owner, or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal. Acceptance of the bid will be contingent upon the fulfillment of this requirement by each bidder.

The Spring Valley Water Works and Supply Company reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

SPRING VALLEY WATER WORKS AND SUPPLY COMPANY
By George H. Buck, President
Buck, Seifert and Jost
Consulting Engineers

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for State Highway and Bridge Construction in the Towns of BILLERICA and CHELMSFORD, FI-I 315(7) will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. of Tuesday, September 21, 1954 and at that place and time publicly opened and read. Proposal guaranty: $40,000. Charge for plans and proposal forms: $20. amount returnable only to bidders. Complete information at said office; plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive an informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: JOHN A. VOLPE, Commissioner of Public Works. August 28, 1954.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: September 21, 1954

Board of Water Supply Contract 419

HEATING AND VENTILATING EQUIPMENT

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M. Eastern Standard Time, (11:00 A.M., Eastern Daylight Saving Time), on Tuesday, September 21, 1954, for Contract 419, for furnishing, delivering, installing and testing heating, ventilating and appurtenant equipment for the Neversink intake chamber, located in the Town of Neversink, Sullivan County, New York, and the East Delaware intake and Downsville release water chambers, located in the Town of Colchester, Delaware County, New York, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the Contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: October 5, 1954

Water Supply Main and Appurtenant Work

CITY OF WORCESTER
DEPARTMENT OF PUBLIC WORKS
LAYING WATER SUPPLY MAIN AND APPURTENANT WORK

Sealed bids for Laying Water Supply Main and appurtenant work will be received at the office of City Manager, Room 306, City Hall, Worcester 8, Mass., until 10 a.m. Eastern Daylight Saving Time on October 5, 1954 and at that time publicly opened and read. The work includes about 13,800 lin. ft. of 36-in. pipe and 5,900 lin. ft. of 30-in. pipe. Pipe may be either reinforced concrete, cast iron, or steel.

Drawings and contract documents may be examined at the office of the Commissioner of Public Works, 20 East Worcester Street, Worcester, Mass., and examined and obtained at the office of Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Mass. Twenty-five dollar deposit required. A surety company bond securing faithful performance and covering the provisions of General Laws Chapter 149-S29 will be required. Proposal guarantee of a $30,000 certified check will be required with the bid. Minimum wage rates under C'461 of Acts of 1935 have been determined. The Contractor will be bound by the applicable statutory provisions of law. The location of this work may be inspected. The City reserves the right to reject any or all bids. Mark envelopes: "Proposal for Laying Water Supply Main Contract 5."

CITY OF WORCESTER
By Earl R. Perry
Commissioner of Public Works

U. S. Government

St. Paul District, Corps of Engineers, U. S. Army 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids will be received at this Office until 2:00 P.M., C.S.T., 23 September 1954, and then publicly opened for Replacement of Boule Dam at Locks and Dam No. 2, Hastings, Minnesota.

OFFICIAL PROPOSALS

Bids: September 30, 1954

City of Alexandria, Virginia, Sanitation Authority

SEWAGE TREATMENT PLANT
DIVISION V-HEATING AND VENTILATING WORK

Sealed proposal will be received by the City of Alexandria, Virginia, Sanitation Authority at the office of the Authority, Room 201, 113 North St. Asaph Street, Alexandria, Virginia, until 2:00 P.M., Eastern Standard Time, September 30, 1954, at which time they will be publicly opened and read aloud, and a Contract will be awarded as soon thereafter as practicable for the furnishing and installation of boilers, convectors, unit heaters, air conditioning equipment, piping and appurtenances. This work is part of the construction of a sewage treatment plant for which bids on all other work have recently been received.

The Instructions to Bidders, Proposal, Agreement, Specifications, Plans and Form of Performance Bond may be examined at the office of the City of Alexandria, Virginia, Sanitation Authority, 113 North St. Asaph Street, Alexandria, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of these Contract Documents may be obtained upon the deposit of $25.00 for each set, to be refunded upon return of such set in good condition within 10 days after opening of proposals.

Each proposal must be accompanied by a bid bond or a certified check on a solvent bank or trust company, made payable to the City of Alexandria, Virginia, Sanitation Authority in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

Bidders must be registered as Contractors in the Commonwealth of Virginia as provided by Chapter 7 of Title 54 of the Code of Virginia of 1950.

The City of Alexandria, Virginia, Sanitation Authority reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the Authority after all bids have been examined and canvassed.

City of Alexandria, Virginia,
Sanitation Authority
(Signed) JAMES J. CORBALIS, JR.
Engineer-Director

Dated: September 3, 1954
Alexandria, Virginia

Bids: October 13, 1954

Contract EXD-130.011

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
THIRTEENTH AND FOURTEENTH FLOOR ALTERATIONS

Sealed proposals for performing alterations on the thirteenth and fourteenth floors of the Port Authority Building, 111 Eighth Avenue, New York 11, New York, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Wednesday, October 13, 1954, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 719, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 16, 1954

OFFICIAL PROPOSALS

Bids: October 18, 1954

Construction of 36-Inch Diameter Water Supply Main Arlington County, Virginia

Sealed proposals for furnishing all materials and equipment and doing all work required for the construction of a 36-inch diameter water supply main, as described below, will be received by the Purchasing Agent in Room 213, in the Court House Building at Arlington County, Va., until 11:00 A.M., E.S.T on October 18, 1954, and there publicly opened and read immediately thereafter

CONTRACT 2B

CONSTRUCTION OF 36-INCH DIAMETER WATER SUPPLY MAIN AND APPURTENANCES.

1. Location: The work is located in Arlington County, Va. on public streets and on County owned right-of-ways from 30th Street, N. to Lee Highway.
2. Type of Work: The principal items of work include the following: Approximately 8800 lin. ft. of 36" steel or reinforced concrete water pipe together with manholes, 24" diameter cone valves, miscellaneous gate valves, blow-off, air release or inlet valves, connections to existing water mains, etc.
3. Copies of Plans and Specifications, Information For Bidders, Bid Forms and other bidding and contract documents may be examined at the Office of the Chief Engineer of the Water Division, County Court House, Arlington, Va., at Dodge Reports, 900 F. Street, N.W., Washington, D. C. and at the Office of ALEXANDER POTTER ASSOCIATES, CONSULTING ENGINEERS, 50 CHURCH ST., NEW YORK 7, N. Y.
4. Copies of Plans, Specifications and Bidding Documents may be obtained from the Purchasing Agent in Room 213, Court House Bldg., at Arlington, Va. upon Deposit of THIRTY ($30.00) DOLLARS PER SET.

Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids: refund for return of all other sets, in good condition. Within the same period, will be Fifty (50%) Percent of the Deposit. No refund will be made for return of documents in poor condition or later than the two week period stipulated.

All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or non-resident in Virginia, will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

All bids must be accompanied by a certified check or acceptable bidder's bond, in an amount of not less than Five Per cent (5%) of the amount of the bid, made payable to the Treasurer of Arlington County, as bid security.

The successful bidder will be required to furnish a Performance Bond Conditioned upon the faithful performance of the Contract, and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

No bidder may withdraw his bid within Thirty (30) days after actual date of opening thereof.

The County Board of Arlington County, Virginia, reserves the right to reject any or all bids and to waive any informality in the bids.

ARLINGTON COUNTY, VIRGINIA
By: A. T. Lundberg
County Manager

Bids: October 18, 1954

Construction Of 6.0 M.G. Water Storage Reservoir And Appurtenances

ARLINGTON COUNTY, VIRGINIA

Sealed proposals for furnishing all materials and equipment and doing all work required for the construction of 6.0 Million Gallon Water Storage Reservoir And Appurtenances, as described below, will be received by the Purchasing Agent in Room 213, in the Court House Bldg. at Arlington County, Va. until 11:00 A.M., E.S.T. on October 18, 1954, and there publicly opened and read immediately thereafter.

CONTRACT 3

CONSTRUCTION OF 6.0 M.G. WATER STORAGE RESERVOIR AND APPURTENANCES.

LOCATION: The work is located in Arlington County, Virginia, on County owned land, at N. Powhattan and N. Rockingham Streets.

TYPE OF WORK: A reinforced concrete covered water storage reservoir approximately 180 ft. by 248 ft. by 22 ft. deep, with a flat slab roof supported on spirally reinforced columns. Also, control chambers and pertinent piping.

Copies of Plans and Specifications, Information For Bidders, Bid Forms and other bidding and contract documents may be examined at the Office of the Chief Engineer of the Water Division, County Court House, Arlington, Va., at Dodge Reports, 900 F. St. N.W., Washington, D. C. and at the Office of ALEXANDER POTTER ASSOCIATES, CONSULTING ENGINEERS, 50 CHURCH ST., NEW YORK 7, N. Y.

Copies of Plans, Specifications and Bidding Documents may be obtained from the Purchasing Agent in Room 213, Court House Bldg., at Arlington, Va. upon Deposit of THIRTY ($30.00) DOLLARS PER SET.

Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be Fifty (50%) Percent of the Deposit. No refund will be made for return of documents in poor condition or later than the two week period stipulated.

All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or non-resident in Virginia, will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Percent (5%) of the amount of the bid, made payable to the Treasurer of Arlington County, as bid security.

The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract, and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

No bidder may withdraw his bid within Thirty (30) days after actual date of opening thereof.

The County Board of Arlington County, Virginia, reserves the right to reject any or all bids and to waive any informality in the bids.

ARLINGTON COUNTY, VIRGINIA
By: A. T. Lundberg
County Manager

Bids: October 5, 1954

Improvements to Water System

KNOXVILLE UTILITIES BOARD
KNOXVILLE, TENNESSEE

Sealed proposals will be received at the office of the General Manager of the Knoxville Utilities Board, 626 South Gay Street, Knoxville, Tennessee, until 10:00 A.M., October 5, 1954, at which time they will be publicly opened and read and contracts awarded as soon thereafter as practicable, for certain improvements to the water system at Knoxville, Tennessee.

The work is divided into two Contracts. Each bidder may submit a bid for both Contracts or for either Contract.

Contract C-2—Buffat Mill Road Reservoir:

Base bids shall cover the construction of a 4 million gallon cylindrical reinforced concrete reservoir, 165 feet diameter, 25 feet deep, with floor and roof of flat slab construction, the entire structure to be underground. As an alternate, bidders may submit proposals for the construction of a reservoir of prestressed concrete, with dome roof and of the same capacity and having the same principal dimensions, structure to be underground except the dome.

Contract C-3—Improvements at Williams Creek Station:

Consists of furnishing and installing all electrical and pumping equipment, and doing all construction work necessary to install a 10 mgd electric motor driven high ligft centrifugal pump, with appurtenances, in the existing Williams Creek Pumping Station.

Contract Documents may be examined at the office of the General Manager, Knoxville Utilities Board, 626 South Gay Street, Knoxville, Tennessee, and at the office of Burns & McDonnell Engineering Company, 95th and Troost Avenue, Kansas City, Mo. Copies of these Contract Documents may be obtained upon the deposit of $25.00 for each set. The full amount of the deposit for one set will be refunded to each actual bidder upon the return of the documents not filed with his bid.

Each proposal must be accompanied by a bidder's bond or certified check made payable to Knoxville Utilities Board, in an amount not less than 5% of the total bid.

Bidders must be licensed in compliance with Sections 7182.24 to 7182.40 of the Supplement to the Code of Tennessee.

The Purchaser reserves the right to reject any or all bids and to waive informalities therein, to determine which is the lowest and best bid, and to approve the bond.

KNOXVILLE UTILITIES BOARD
M. B. Whitaker
General Manager

Bids: October 14, 1954

New Jersey Turnpike Authority

CONTRACT NO. N-11

Proposals are invited for Contract No. N-11 which involves grading, drainage, paving and other incidental work from the Newark Bay Bridge to the Southeast Viaduct in the Cities of Bayonne and Jersey City, Hudson County, New Jersey, all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Embankment	420,000 Cu. Yds.
Storm Drains,	
Reinforced Concrete Pipe	15,200 Lin. Ft.
Manholes and Drop Inlets.	165 Units
Portland Cement Concrete Pavement	45,000 Sq. Yds.
Bridge Approach Slabs	3,500 Sq. Yds.
Class B Concrete	1,250 Cu. Yds.
Reinforcement Steel	110,000 Lbs.
Curb	17,000 Lin. Ft.
Guard Rail	9,000 Lin. Ft.
6-Inch Topsoiling or Surface Preparation and Seeding	125,000 Sq. Yds.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock Eastern Standard Time on the morning of October 14, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after September 17, 1954, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

September 16, 1954

Read the Official
Proposal Columns of
ENGINEERING NEWS-RECORD
This Week and Every Week

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

ENGINEER: ORGANIZE and supervise estimating and cost accounting department. Must have broad and heavy construction experience, background in preparing bidding estimates and in cost keeping work. Permanent job with nationally known firm in Southwest. Man between 40 and 50 preferred. Replies should give personal information, work history, and references. Write Box P-3692, Engineering News-Record.

ESTIMATOR: FOR Highway and Railroad Bridge Construction and Restoration in Southeast Ohio and adjoining states. Must have supervisory background and be cost conscious. Thorough experience essential. State experience, references, personal information and salary expected. Good chance for the right person. Reply P-3847, Engineering News-Record.

IRRIGATION ENGINEERS with agricultural extension experience, engineers experienced in design and construction small irrigation works. Project located in Middle East. Contract one year with option of renewal for second year. Submit resume, age, education, experience, references, present salary requirements and availability. P-3857, Engineering News-Record.

SANITARY ENGINEERS with experience in design of water treatment plant and distribution systems, concrete design and estimates. Also—draftsmen, survey chief of party, instrument men. Location Latin America and Middle East. Submit qualifications, education, experience, references and minimum salary required. P-3858, Engineering News-Record.

JR. CIVIL Engineers, Instrumentmen, Map Draftsmen needed for expanding Highway Program in Nevada. State Personnel Department, Carson City, Nev.

ENGINEERS — MUNICIPAL Experience: The City of Las Vegas, Nevada, due to rapid expansion has permanent openings for Engineers and Draftsmen experienced in municipal design. Write to City Engineer, giving background, samples of work and salary range.

ESTIMATOR WANTED on commercial and industrial buildings. Good opportunity. Permanent. W. E. O'Neill Construction Co., 2751 Clybourn Avenue, Chicago, Ill.

ENGINEERS

For supervisory positions with large consulting firm. At least 7 years' experience in design of hydro and hydraulic structures required.

HARZA ENGINEERING COMPANY
400 W. Madison Chicago 6, Ill.

BRIDGE ENGINEERS
AND SPECIFICATION WRITERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

WANTED

BY NORTHERN OHIO BUILDING MATERIAL PRODUCER AND DISTRIBUTOR —ENGINEER EXPERIENCED IN CONCRETE MIX DESIGN AND HAVING WORKING KNOWLEDGE OF CONSTRUCTION AND PAVING PRACTICES. WRITE, GIVING FULL DATA AS TO EXPERIENCE, AGE, ETC.

P-3879, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

STRUCTURAL STEEL Detailers and Checkers by Fabricators in Western Canada required for all types of buildings, bridges, etc., also Reinforcing Concrete detailers. Good salary and conditions for experienced man. P-3825, Engineering News-Record.

ESTIMATOR WANTED — Plumbing, heating and Air-Conditioning Contractor — New Jersey. Experience absolute necessity. Reply must give full details of previous employment and references. P. O. Box P-3831, Engineering News-Record.

WANTED: RECENT civil or mechanical engineering graduate. General field of municipal water supply. Permanent position with annual increase in salary and bonus. Profit Sharing Plan. Frequent change in location necessary. P-3835, Engineering News-Record.

ESTIMATOR—WELL known heavy construction firm desires executive experienced in the preparation of competitive estimates for bidding dams, tunnels, airfields, roads, power plants, etc. Knowledge of quarry operations, rock tunneling, earth moving, mass concrete and heavy equipment operation helpful. Some travel. Location—New York City. Submit detailed resume. Reply P-3843, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — Young, capable construction superintendent needed to supervise large real estate program in metropolitan area. Must have background in subdivision work, road building, some heavy construction experience, and commercial and institutional construction background. Excellent long range opportunity. Reply must give education, family background and references. New position. Box P-3845, Engineering News-Record.

WANTED: EXPERIENCED concrete reinforcing bar designer, checker, detailer. Salary based on experience and ability. Employee benefits. Southern Engineering Company, Box 1087, Charlotte 1, N. C.

ENGINEERS, COMPETENT and experienced in design and supervision of construction and as resident engineers on water works, sewer systems, sewage and water treatment. State experience, when available, salary requirements, references. P-3452, Engineering News-Record.

SUPT. FOR Gen'l Contractor. Must be familiar with concrete construction, brickwork, etc. and capable of supervising subcontractors' work. State experience, when available and salary requirements. P-3934, Engineering News-Record.

DRAFTSMAN-PARTY Chief for engineer land surveyor. Must be either graduate or thoroughly familiar with topo-mapping and general surveying. No drinkers. State age, education, experience, salary desired, when available. Write Box 464, Bessemer, Alabama.

(Continued on the following page)

WANTED

GRADUATE CIVIL ENGINEER

The City of Marysville, Michigan invites employment applications from Graduate Civil Engineers interested in career in Municipal Engineering. Address letters of application stating qualifications, experience and salary desired to

CITY MANAGER
CITY HALL MARYSVILLE, MICHIGAN

SOUTH AMERICAN POSITIONS

MILL METALLURGIST for large copper concentrator, to work directly under Asst. Superintendent and be in full charge of all testing research.

YOUNG CIVIL ENGINEERING GRADUATE with some experience in maintenance of track and track equipment for Railroad Department.

GRADUATE MECHANICAL ENGINEER with several years experience in actual supervision of large shops comprising Machine Shops, Plate & Welding Shops, Iron, Steel and Brass Foundries.

Large Copper Company Chile, South America, 3-year contract. Transportation both ways and salary while traveling paid by Company. Good opportunities. In reply give complete details.

P-3739, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

Foreign Service

Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

Arabian American Oil Company

505 Park Avenue, New York 22, N. Y.

DEPUTY BUILDING INSPECTION SUPERVISOR: Graduation from an accredited four year college with degree in structural or architectural engineering. Seven years of experience in the structural design of buildings and some experience in examination of plans and specifications of building projects and applications for building permits. Salary $5668-$6708 per year.

STRUCTURAL ENGINEER: Graduation from a college or university or recognized standing with a degree in engineering, specializing in structural engineering, and 5 years experience in a responsible capacity involving design of all sizes and classes of buildings and structures or an equivalent combination of experience and training. Salary $5408-$6240 per year.

Complete details by writing to:

Director of Personnel,
Municipal Building, Hartford, Conn.

Senior Specifications Writer

LOCATION—EUROPE

The person we are looking for should have heavy experience writing specifications for all types of structures, utilities, airfield and harbor facilities, plus a knowledge and evaluation of materials and equipment through foreign sources of supply. The individual selected will be required to sign an 18-month contract and will be exempt from U. S. and foreign income taxes. As the location is in one of Europe's largest cities, there are no family restrictions.

Send complete resume, including past earnings and salary expected to:

P-3907 Engineering News Record
330 W. 42 St., New York 36, N. Y.

DRAFTSMEN

Experienced structural steel detailers and checkers for building work and conveyor detailing. Consulting office with good working conditions, vacation plan, payed holidays, and hospitalization program. Please send complete written information in first letter.

SAMBORN, STEKETEE & ASSOCIATES
1214 CHERRY STREET TOLEDO 4, OHIO

POSITIONS VACANT
(Continued from preceding page)

ARCHITECTURAL DRAFTSMAN and Designer wanted with 4 years' minimum experience in planning school and church buildings. Good pay and permanent position for man who can assume responsibility. Write P. O. Box 296, Lancaster, Ohio giving qualifications, experience and references.

QUARRY SUPERINTENDENT wanted for Penna., who has the experience to open new quarry, layout, erect and operate plant. Give age, experience, availability and salary desired. Box 487, Copley, Penna.

SALESMAN STRUCTURAL Steel — for established Eastern Penna. Fabricator. Must be top grade man with proven ability and broad experience. Give full particulars in reply to P-3891, Engineering News-Record.

SALES ENGINEER a well-established Eastern steel fabricating plant with expansion potentialities requires a manager of sales. Here is a real opportunity for a man with enterprise and proven ability. Reply with full particulars as to experience and personal data. P-3915, Engineering News-Record.

CHIEF ENGINEER for Eastern steel fabrication plant. Must be experienced in design, steel plate fabrication, ASME codes and complete operation of engineering department. Please give full details with salary requirements in first letter P-3916, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES ENGINEERS — New York City and Rochester, New York territories open with well established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience necessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-3855, Engineering News-Record.

EMPLOYMENT SERVICES

OVERSEAS PROJECTS Guide to most active construction-engineers, oil cos., gv't & UN groups hiring for foreign projects. Send $1. Cove-McKane Int. GPO Box 126E, NY 1, NY.

SALARIED PERSONNEL $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CONST. ENGR.—20 yrs experience on all types of Construction—Airbases—Canals—Dams—Hospitals—Concrete Bldgs—Wood frame bldgs—office and field work—Masters Degree in Civil—Prefer foreign work—Just off a completed airbase contract—43 yrs old—Available stateside Nov. 5th. Write Box PW-3443, Engineering News-Record.

SALES EXPERIENCE thru the 30's. Heavy construction management to this date. Wish to return to equipment sales again with sales management eventually in mind. Lots of experience, still young. PW-3716, Engineering News-Record.

NAVY CIVIL Engineer Corps officer seeks position in project management, plant maintenance engineering, city engineering or related fields. Available in 120 days. Long hours and travel no barrier. Education: Bus. Adm., EE and CE. Experience includes design, heavy and light construction, maintenance procedures, transportation, project planning and analysis, contracts, fiscal and work control, supervision of up to 600 employees, and controlled expenditures up to 4 million dollars per year. PW-3784, Engineering News-Record.

CHIEF ESTIMATOR
CONST. ENGINEER

Complete charge estimating dept. Commercial and industrial buildings, sewage treatment and water filtration plants. Familiar with all take-offs, pricing, sub bids. Available in six weeks. Salary $12,000 per year.

PW-3902, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS WANTED

HAVE MUCH to offer contractors in heavy construction field as top flight supervisor. Age 42. Reply PW-3709, Engineering News-Record.

ESTIMATOR—OFFICE Engineer, heavy construction (bridges, highways, foundations, utilities). 4 years field, 6 years in office estimating, material take-offs, purchasing, scheduling. Have compiled cost systems, expedited, and managed jobs. 32, P.E. Desires L. I., N.Y.C., Westchester. PW-3910, Engineering News-Record.

CONSTRUCTION ENGINEER 42 years old, 12 years experience mechanical and structural supervision, presently employed, primarily interested in foreign assignment, good references. PW-3849, Engineering News-Record.

SUPERINTENDENT: SCHOOLS, hospitals, Industrial, sewage, water treatment plants. Design, detail, and fabricate forms. Excellent record with subcontractor supervision. Age 54. PW-3870, Engineering News-Record.

COST AND Office Engineer (27) 3 years steam power plants, 3 years AEC, seeks construction job in U. S. PW-3833, Engineering News-Record.

GENERAL SUPERINTENDENT. Over 25 yrs. heavy construction experience. Qualified to take full responsibility of projects of any type or size. Good background, know men and equipment, available any location, immediately. PW-3806, Engineering News-Record.

STRUCTURAL DESIGNER, age 36, BS & MS. Degrees, 8 years office experience in miscellaneous building design. Can supervise design groups. Will locate anywhere in U. S. PW-3768, Engineering News-Record.

CONSTRUCTION ENGINEER BSCE, 30, 3 years field, 2 years office management experience with supervisory, organizational, and sales ability seeks project or permanent position in west or overseas. Available soon. PW-3877, Engineering News-Record.

CHIEF ESTIMATOR—Project Manager—Age 50—Experienced in Field Control; estimating, cost control, purchasing, sub-contracts—Currently employed but wanting other connection preferably South or Southwest. PW-3930, Engineering News-Record.

30 YEARS experience with earth moving equipment, shovel operator, general foreman, and super. of equipment. PW-3931, Engineering News-Record.

SUPT. FOR Gen. Contractor, 37 years of age, 16 years experience on Power plants, Comm. bldgs, Industrial bldgs, bridges. Familiar with heavy equip. Foreign work acceptable, location not important in U.S.A. Reply PW-3881, Engineering News-Record.

ENGINEER, 31 BSCE 4 years field supervision experience, building and heavy construction. PW-3892, Engineering News-Record.

OFFICE MANAGER familiar all phases construction contracting business. Many years experience large projects Branch Offices Latin America. Speaks, reads, writes Spanish. Available immediately. PW-3893, Engineering News-Record.

DRAFTSMAN 3½ yrs reinforcing steel and design drawing experience for engineering or contractors office. PW-3894, Engineering News-Record.

CIVIL—STRUCTURAL Engineer, 32, B.C.E. Nine years diversified experience; supervision, planning, design (structural and hydraulic), specifications, estimating, in office and in field. Worked on design and construction of coal flotation, heavy media separation and ore processing plants. Considerable knowledge of heavy machinery and materials handling equipment. Desires responsible position in sales, construction or design with progressive organization. PW-3922, Engineering News-Record.

LEARN ESTIMATING

Complete Building Estimators Course, also Building Labor Calculator for practicing estimators. Thirty-fourth year serving the building industry. For free trial and all particulars write:

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Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.

GEO. E. DEATHERAGE & SON
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ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. ***Forty-fourth year. Write today.***

WILSON Engineering Corp.
College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS WANTED

CIVIL ENGINEER young veteran some graduate work four years experience soils, traffic, airports wants interesting position in Chicago. PW-3896, Engineering News-Record.

CIVIL ENGINEER, Graduate, Registered. Six years design experience. Desires heavy construction or challenging structural design work in the Trenton-North Philadelphia area. PW-3939, Engineering News-Record.

SELLING OPPORTUNITY WANTED

MANUFACTURERS' AGENT with 25 years experience desires to make contact with progressive manufacturers dissatisfied with present sales volume along eastern seaboard. Only products allied with compressed air and concrete lines will be considered since that is our specialty. If you can use such a sales setup, please write in complete detail to box RA-3899, Engineering News-Record.

BUSINESS OPPORTUNITY

Interested in contacting a well established, financially responsible steel-fabricator who would be interested in manufacturing a new patented automobile parking device, either contract or royalty basis; or will allow to participate financially in entire project, manufacturing, selling and distribution. An actual working model in operation. Detailed information upon inquiry, location immaterial. Contact P. J. Scott, P. O. Box 8097, Phone 5-3570 or 6-5740, Jackson, Mississippi.

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Structural and Plate Steel Fabricators

Open capacity for quick delivery now available. We solicit your inquiries for Steel Fabrication and Warehouse Steel Products. Let us figure your jobs . . . Large or Small.

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Estimate general construction costs any time, place—quicker, more accurate. $15 postpaid from:

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WANTED

50 to 100, 24 inch Roller Bearing troughing Idlers, also return Idlers and head and boot pulleys, also 24 inch belting.

CHAS. M. FREIDHEIM CO.
5115 W. 36th St. St. Louis Park, Minn.

WANTED TO BUY
4000' 15 or 16" CONCRETE FORMS

WILLIAMS CONSTRUCTION CO.
Box 145 Baltimore 20, Md.

WANTED TO BUY
1-5 Yd. DIPPER DREDGE

W-3905, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

For Sale
Buckeye C-15 Trencher
Excellent Condition
New conveyor belt—Reasonable

MANCINI CONSTRUCTION CO.
23170 Schoenherr Rd. East Detroit, Michigan

FOR SALE

New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS PILE SECTIONS

50 pcs	10" B P S	42#	48/60'
46 "	10" B P S	57#	40/67'6"
60 "	12" B P S	53#	60'
63 "	14" B P S	73#	60/75'

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.

We assure you our prices will be the best obtainable.

HY DRACHMAN STEEL CORP.

Warehouse
1423 34th Avenue, Astoria, New York
AStoria 8-4484 8-8023

Sales Office
563 East Tremont Ave., New York City, N. Y.
CYpress 9-5440

CARE TO TRY A LITTLE BARTER?

We have to offer:

1—LeTourneau Model D Roadster 8-10 yard self-propelled scraper with Cummins Diesel engine and excellent rubber..... $7500.00
1—Caterpillar D-4 Crawler with Bros Hydraulic Angledozer. Very good all around condition..... $4800.00
1—International TD-9 Crawler with Bucyrus-Erie Angledozer. Ready to work $4200.00
1—Northwest half-yard Crawler Crane-Dragline with gas power..... $3900.00

We would rather have:
Cash and/or late model Allis-Chalmers Crawler Tractors or Scrapers.

FRANTZ EQUIPMENT COMPANY
50th & Wynnefield Avenue Philadelphia 31, Pennsylvania
GReenwood 7-7200

A RELIABLE PLACE TO BUY

USED NORTHWEST MACHINES

HODGE & HAMMOND, INC.
Northwest Distributor for 21 years
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SEA MULES FOR SALE

All steel twin screw tug boats. 38'x13'x6'. Powered by two 142 HP Chrysler engines. 9 to 1 reduction gear.

New, still in the original crates. $6500 each.

MISSISSIPPI VALLEY EQUIPMENT CO.
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FOR SALE or RENT
With Option to Purchase
Rebuilt—A1 Condition
48B Bucyrus Erie Shovel 2 cy diesel
Model 25 N. W. Shovel ¾ cy diesel
Caterpillar D6 Bulldozer
Shovel Front for Model 25 N.W.
6 wheel Mack Tractor 40 ton Rogers Low Boy
WILLIAMS CONSTRUCTION COMPANY
Box 145 Balto. 20, Md. Murdock 6-6600

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Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
Jones Island, Station D
Milwaukee 7, Wis.

FOR SALE

LOCOMOTIVES

Diesel electric
25 - 44 - 45 - 65 - 70 tons

Write for Details

FRANK M. JUDGE & CO., INC.
7010 Empire State Building
New York 1, N. Y.

Stiff Leg Derricks 10 to 100 Ton
Guy Derricks, 20 to 45 Ton Capacity
Hoists Elec. Gas, Steam
Steam Hoist 10 x 12 Cyl. 3 drum
3½ Yd Page Diesel Elec Walker Dragline
40 ton Locomotive, Gas Elec
50 Ton Locomotive, Steam
Locomotive Cranes—Gantry Cranes.
Bucyrus Erie, Model 42-B Steam Crane, Pile Driver
STONE THE CRANE MAN
1132 Prudential Bldg. Buffalo 2, N. Y.

FOR SALE
BUCYRUS 375 DRAGLINE
WARD LEONARD CONTROLS
150' Boom—9-½ Yard Dragline Bucket
—Good Condition
FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd., Long Island City 1, N. Y.

DEPENDABLE USED MACHINES

Special:—Pioneer 17V portable gravel plant with Cummins Diesel engine; 4 yrs. old. Come see it!

Bay City ¾ yd. dragline	Koehring 1 yd. comb. shovel-dragline	3 yd. Dumpcrete
Bay City ½ yd. backhoe	Link Belt LS85 crane; Cat. Diesel	Butler Carscoop
Unit ¾ yd. backhoe	Ransome 4½ yd. truck mixer	Gallon motor grader
Link Belt LS75 crane	Trailer type road broom	Eagle coal crusher
Lessman loader	Cedar Rapids 16x16 roll crusher	Pioneer 4x8 screen

For rent,—Cranes, truck cranes, buckets, frost balls, floats and other accessories.

10002 Southwest Highway TRACTOR & EQUIPMENT CO. Oak Lawn, Ill.

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IMMEDIATE DELIVERY OF CONVEYOR, ELEVATOR AND TRANSMISSION BELTING — FIRE, WATER, SUCTION, AIR, STEAM AND WELD HOSE

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62-66 Park Place, New York 7, N. Y.
Phone Digby 9-3810

FOR SALE

BARGAIN

1½ Cubic Yard Blaw-Knox R46, Bottom Dump Concrete Buckets.

$250.00 each

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Ave., St. Louis, Mo. ST. 1-1950
Box 188, Grahamsville, New York..... 2861

FOR SALE

MICHIGAN TMDT-16—10 wheel Truck Crane—Factory Rebuilt & Guaranteed—40' Boom, Rudomatic Tagline, Shovel Front.
HOUGH HM Payloader—1½ Yd. Capacity—New Aug. 1952, with Operator's Cab.
LS-60 Link Belt Speeder—50' Boom, Fairleads, ⅝ Yd. Backhoe.
CATERPILLAR D-4 Bulldozer—New 1949—Reconditioned.
MICHIGAN C-24 ¾ Yd. Crawler—New 1954 Backhoe, 40' Boom, Rudomatic Tagline.
INTERNATIONAL ID-9 Towing Tractor, Serial No. 1DGB 34627 Y14, General 7:50x18 Tires on Steer Wheels, 14:00x24 Tires on Drive Wheels (all tires new), powered by International Diesel Engine Model 65309-D-3, Serial No. 29480. Excellent Condition.
UNIT ½ Yd. Backhoe—1951—Reconditioned Feb. 1954, powered by Waukesha gas engine—18" pads.
MICHIGAN TMDT-16—New 1951—75' Boom, 10' Jib, Worm Gear Boom Hoist, Swing Brake, Tagline, ½ Yd. Trenchoe.
MICHIGAN TLDT-20—New 1953—85' Boom, 10' Jib, Worm Gear Boom Hoist, Swing Brake, Rudomatic Tagline, Power Steering.
MICHIGAN T6K—New 1954—25' Crane Boom, Rudomatic Tagline, Outriggers, Driver's Cab.

All Machines Subject to Prior Sale.

EQUIPMENT DISTRIBUTORS, INC.
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NEW JERSEY DISTRIBUTORS FOR THE MICHIGAN LINE AND AMERICAN HOIST & DERRICK LINE

TWO (2) GRADALLS

Model—2400—One mounted on Diamond T—6-Wheel Drive—10 Wheel Truck—One on International 10-Wheel Truck. Both with 36" Bucket—Ready to work. Inspection invited—Cash or Terms—NO RENTAL PURCHASE.

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One Portable ERIE 3 compartment Aggregate Bin, type GAB-79, 79 cu. yd. or 118 ton heaped capacity with adjustable columns; with one type BWFR 2 cu. yd. weighing aggremeter with three beam scale and reversible discharge gate.

One ERIE Storage Silo CSB450, 450 bbls.

One BLAW KNOX Cement Bin #BCP-300 with Batcher Equipment.

Two 1953 White Trucks with Rex 5½ yd. high discharge Adjusta-Wate Moto-Mixers.

Available approximately, Sept. 1, 1954. Can be inspected at Wilkins Air Force Depot, Shelby, Ohio. Subject to prior sale.

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1510 Montcalm St. JO. 4621 Toledo, Ohio

FOR SALE

2—Hopper dredges, one 10" Diesel Protable Dredge
1—16" Steel Hull diesel dredge
2—20" Dredge Pumps, one new
1—8 yd. Dipper Dredge Steel Hull, Steam
1—Fairbanks Morse 41C, AD. 250 Direct Connected Diesel Generator Set
1—3½ Yd. Round Nose Hard Digging Clam Shell Bucket With Teeth

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1951 Galion Grader—
Diesel Powered $8,900.00
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1949 Michigan Truck Shovel
w/40' Crane Boom $8,900.00

All in good condition

Call Woburn, Mass. 2-2348
Weekdays 10 a.m. to 6 p.m.

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Model-D-
LeTourneau Roadster
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Power General Motors Diesel with
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Tires 18.00x25x12 Firestone
Price $8,000.00—Conneaut Lake

Demonstration on Request

CONNEAUT LAKE PARK, INC.
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900 Universal Forms Clamps ⅝ Cat No 2
3700 Universal Forms Clamps ½ Cat No 3
144 Cable Clamps 1" 1½" 1⅝"
10 6" extra heavy sheaves
10 12" extra heavy sheaves
10 2½" Pile Driver Hose 35' to 50'
10 2" Pile Driver Hose 35' to 50'
150 Welders Helmets (used)
150 Space heaters (used)

Mellon-Millett, S. C.

5—LaPlante-Choate Motor Scrapers, Model T.S. 300. Priced at $14,000.00 each.
1—Tournadozer equipped with G.M. Diesel and Torque converter, $12,000.00.
1—L. B. Littleford steam generator 3,000 gallon capacity, and trailer, $5,000.00.
All of the above machines are in excellent condition and are about three years old.

VILBRO EQUIPMENT COMPANY
233 North Ave. Westfield, N. J.

FOR SALE - BARGAIN PRICES

1—8 yd. Mixer on 1952 LJS Mack Chassis
1—8 yd. Mixer on 1952 LMS Mack Chassis

Can be inspected at Passaic, New Jersey

Union Building & Construction Corporation
Prescott 7-1200

FOR SALE

4—1953 D8's with D.D. P.C.U. and new bulldozer blades. A-1 condition—Reasonable.

FS-3908, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

FOR SALE

MANITOWOC—16 TON—8DF—MOTOR TRUCK CRANE WITH 90 FOOT BOOM;
TD-18; DUMP TRUCKS, DAYBROOK LUGGER CRANES; BANTAM SHIELD HALF-TRACK WITH CLAM SHELLS;
PICKUP AND 1-½ TON RACK TRUCKS;
100KW INTERNATIONAL FERMONT DIESEL GENERATORS;
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GORMAN AND MARLOW PUMPS;
125 CFM JAEGER AIR COMPRESSORS AND AIR TOOLS;
TRACTORS, TRAILERS, LOW-BUOY;
Various Locations, New York and New Jersey
Subject Prior Sale

MALAN
STillwell 6-8604
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FOR SALE

END LOADER OLIVER OC3

Extra Heavy Teeth.
Used Two Months on Particular Job.
Completely Reconditioned.
Excellent Condition.

Purchase Price New $3,750.00
SALE PRICE.....$1,950.00

COAKLEY & BOOTH, INC.
55 East 43 St. New York 17, N. Y.

FOR SALE

4—1951 A51S Diesel Tandem Dump Trucks, 10 cy bodies, Unladen weight, 19,000 lbs ea., excellent for batch and long haul—Excellent Condition $6,500.00 each.

1—1950 Dual Drum 34E Foote Paver, rebuilt inside and out, new cats and undercarriage in late 1953. Guaranteed. Will Consider rental purchase. $16,500.00

WANTED

1—30-50 Ton Pneumatic Roller.

FS-3935, Engineering News Record
330 W. 42 St., New York 36, N. Y.

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GAS • DIESEL • STEAM • ELECTRIC

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55 CFM	Lindsay (GAS)
60 CFM	LeRoi—CPT—Worth (GAS)
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210 CFM	Worthington (GAS & DIESEL)
270 CFM	Sullivan w/Buda Power Unit—Skids
315 CFM	Worthington (GAS & DIESEL)
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600 CFM	Worthington (DIESEL)

STATIONARY

80 CFM	6 x 5 Worthington HB—10 HP Elec
122 CFM	7 x 7 Worthington HB—20 HP Elec
165 CFM	60 PSI 8 x 7 CPT-TB
168 CFM	135 PSI 8 x 9 CPT-TB
211 CFM	9 x 9 Ingersoll—ES-1—40 HP Elec
294 CFM	125 PSI 10 x 11 Worth-HB
364 CFM	20 PSI 12 x 7 Gardner Denver
368 CFM	100 PSI 12 x 10 IR-ERI
905 CFM	55 PSI 17 x 13 CPT-TB
1085 CFM	35 PSI 20 x 12 Pennsylvania
1452 CFM	70 PSI 15/15 x 14 Penn Duplex

MANY OTHERS TO CHOOSE FROM

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VACUUM PUMPS

434 CFM	14 x 7 Ingersoll 15-20 HP
720 CFM	18 x 7 Worthington 25-30 HP
1184 CFM	22 x 9 Chicago 40-50 HP
1633 CFM	24 x 11 Chicago 60 HP
4000 CFM	30 x 12 (D) Ing—XVH

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COMMENT
from the
BUTLER ENGINEER
. . . of automation and the moon

We're not quite ready to raise the curtain on Act I of our new play "Complete Automation" but I can give you a bit of a sneak pre-view.

I wish there were another word stronger than "complete" in relation to automation. "Completely automatic" implies push-button control, especially in relation to Ready Mix Plants.

And this *is* a new Butler Ready Mixed Plant whereof I speak but it will be as far beyond push-buttons as a space-ship is beyond the DC-3. Never been anything like it before . . . I said to one of my lads in the engineering department,

"You know, there's only one step left in electronic, automatic batching. That would be to make a psychic batcher that reads the operator's mind".

Said he, "Nope, boss. This new one's better. If the operator had a hangover he'd raise hell with a phychic plant!"

He's right! This new Ready Mixed set-up is absolutely, completely, positively fool-proof under any circumstances. And fast? The sonic barrier in batching is gone, along with the human element.

I'll tell you more — just as soon as *my* boss will let me.

•

There's another highly interesting Ready Mixed job we're doing. In automation it's at the push-button level, but . . . when the batchers are up to weight an electronic memory holds the number and composition of the batch, the date and the exact time of day . . . Then, during the *discharge cycle* — in three seconds — the device *types* all that information it stored in its memory. Note that the record is made during batch *discharge*. No time lost from production.

When there's a Ready Mixed Plant on the moon — it will be built by Butler.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

NEW PRODUCTS

Magnetic flux and automatic feed team to make welder easily operated

Now in production is a new semi-automatic welding machine that is said to combine the flexibility of hand welding with the quality control of automatic machines.

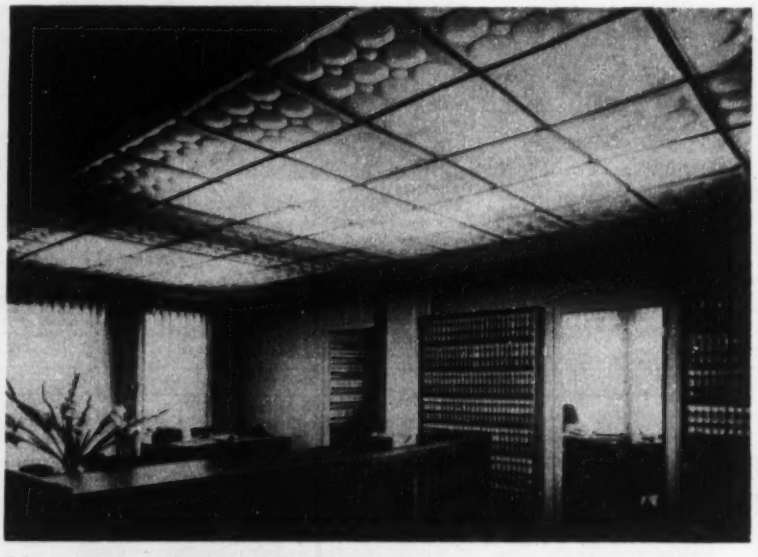
The new machine, called the Amsco MF Welder, feeds bare wire through a hand-held hopper containing magnetic flux. The flux clings to the wire as it leaves the hopper because of the magnetic field set up by welding current flowing through the wire, thus the electrode wire, which is fed continuously from a coil, reaches the arc with a flux covering that contributes the advantages of manual electrode coating. The operator can weld steadily for 15 minutes if desired; the delay of replacing electrodes and the waste of stub ends are eliminated.

Conventional (ferrous) automatic welding is only feasible when bare wire is used—which requires covering the weld area with a loose, granular flux. This means covering the arc as well, permitting no observation of the work; therefore, it is essential in automatic welding, that the work or the welding electrode be traversed and jigged mechanically for proper deposition.

While this is saticfactory for routine, repetitive pieces that are flat or round, it is not economical for irregular pieces or short-run work. Furthermore, a lot of unused flux must be handled on every job.

Primarily a wire-feed and arc-control device, the new MF machine does not obsolete basic welding equipment. The MF is easily connected to any conventional ac or dc welding machine and operates over a current range of from 150 to 500 amps. It consists basically of a hook-up cable, a small chassis mounting an electrode wire reel, motor driven feed rolls, and a flexible 14 ft tube through which the electrode wire feeds to the hopper. The portable model is provided with wheels for easy movement, and is pear-shaped to help in pulling it around the

(*Continued on page 115*)



Plastic panels have 3-D patterns

Daylight ceilings that are decorative and sound absorbent are made with panels formed of translucent bakelite. Uniform light is afforded by diffusion through the suspended panels and their three-dimensional patterns offer interesting architectural possibilities. The 24-in. squares are supported by a flexible aluminum "T" suspension system. The panels can be used to conceal general building equipment usually attached to the ceiling, and, according to the manufacturer, the system is adaptable to combination with acoustical, ventilating, fire control and lighting requirements of any area. Daylight Ceiling Co., 1250 17th St., San Francisco 7.

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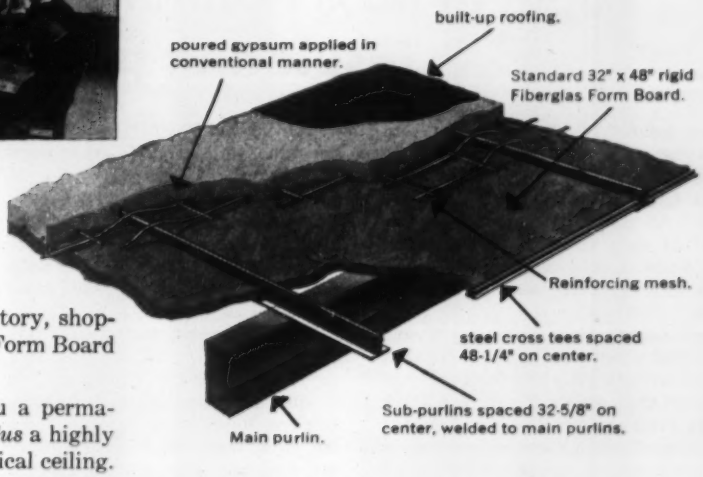
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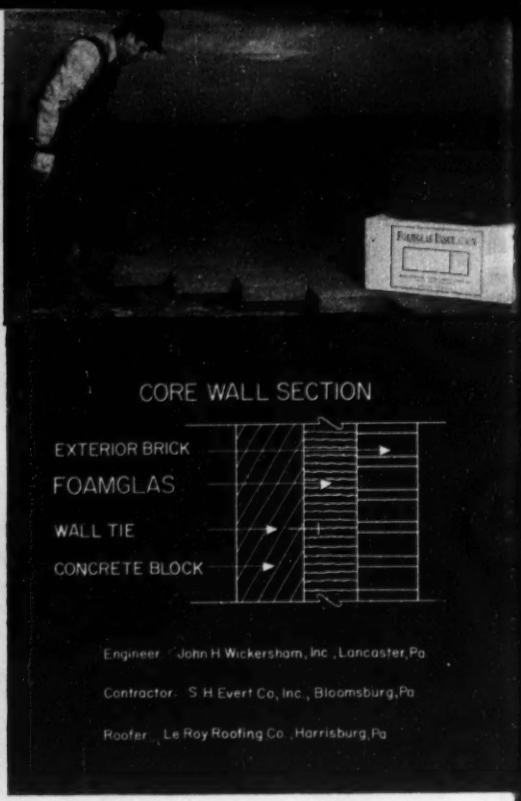
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Chief Engineer Harold Cahn, General Cigar Co., Inc., Lancaster, Pa., reports . . .

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Precise control of plant humidity and temperature is extremely important in manufacturing of quality cigars. That's why General Cigar Company put *stay-dry* FOAMGLAS insulation in walls and on the roof of their new Mt. Carmel (Pa.) plant addition to help maintain a constant 65% to 85% humidity and 75° F. temperature.

General Cigar's Chief Engineer, Harold Cahn, explains why they use cellular glass insulation to help maintain the quality of their White Owl, Robt. Burns, Van Dyck and Wm. Penn cigars: "The high humidity which is vital in tobacco processing is mighty rough on ordinary insulations. Until 1948 the roof of our Lancaster plant was insulated with an organic insulation which became water-soaked and ineffective. We removed the old insulation and replaced it with FOAMGLAS because it has a moisture-proof cellular glass structure.

"For six years it has proved it will stay dry even when subjected to this very severe test . . . constant exposure to a very humid atmosphere. Naturally we used FOAMGLAS to insulate the roof and walls when we built our new Mt. Carmel plant addition last Fall."

The waterproof, sealed glass cell structure of FOAMGLAS is mighty important to you, too. It's a big reason why this unique insulation gives such dependably efficient, long-lasting performance insulating roofs, walls, floors, cold rooms, piping and equipment. In addition, FOAMGLAS is light yet strong and rigid . . . fireproof, vermin-proof and acid-proof.

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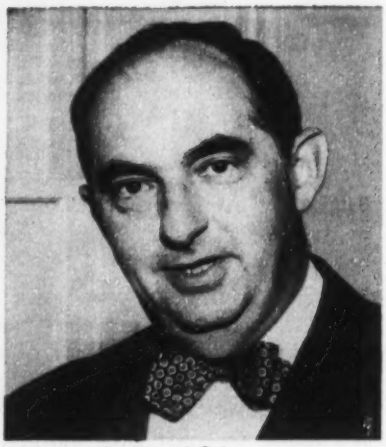

Harold Cahn

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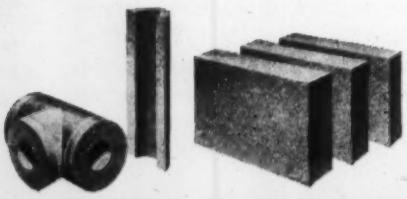

Pittsburgh Corning also makes PC Glass Blocks

job. Weighing only 34 lbs it can be hung on a wall by means of a simple bracket. A slightly larger cabinet model is also available, caster mounted, and with ample storage space for various fluxes.

The magnetic flux reportedly provides arc shielding, deoxidation, arc stabilization, slag coverage of the molten bead and, in some instances, alloying ingredients. The possible range of flux types is wide. Using only one type of electrode wire and varying the flux to suit, it is possible to deposit mild steel, build-up steels, martensitic steels, martensitic irons, austenitic manganese steel, and other alloys. Only seconds are required to change from one type of flux to another, and no waste of flux or electrode is involved.

When the arc is struck the welding current closes a relay which connects a drive motor to the source of welding current, and the motor feeds wire to the arc. Motor voltage—and speed—depend on voltage across the arc. If the operator should pull away from his work, increased arc voltage speeds up the motor to feed wire faster. If he leans toward his work, decreased arc voltage slows down the motor to feed wire slower. This self-compensating feature holds the arc gap steady at any length set by the operator's control rheostat.

A practically constant arc length makes it possible for the operator to concentrate on accurate weld metal placement and is a great help in training inexperienced welders. To evaluate this factor, a novice who had never handled welding equipment was enlisted, and laid satisfactory welds after five minutes of instruction. The steadiness of the arc, as evidenced by recording meters, was comparable to that of an experienced welder with a manual electrode.

A push button allows the operator to feed wire without striking an arc. When set up for welding, several inches of bare wire project from the hopper nozzle. A pinch of flux can be placed where the weld will begin to make starting easier and to compensate for the small length of bare wire sticking out of the nozzle. Instantly after starting, wire feeding into the arc is coated with magnetic flux from the hopper.

The use of magnetic flux and a magnetic gate on the hopper nozzle prevents spillage of the flux. The gate consists of several tiny permanent

(Continued on page 116)

Brush cutter attaches to chain saws

Specifically designed for attachment to Lombard chain saws (Models 30, 35, 3A or 3½D), the Brush Cut is said to be easily handled by one man. Weight of the unit is carried by a shoulder strap and a contoured thigh plate so that both hands are free to manipulate the saw. Changeover between chain and brushcutting saws is reportedly rapid so that the unit appears to be a fairly handy land clearing combination. Lombard Corp., 300 Main St., Ashland, Mass.

SAVES STEEL, CUTS COSTS WITH WELDED DESIGN

AN estimated 120 tons of steel has been saved through welded design in the construction of this 14 story framework. This building, 140 feet across the front and 90 feet on the sides, is considered to be the largest all-welded multi-story structure in Florida.

Designed to withstand 50 pounds per square foot of hurricane winds, beams have semi-rigid end connections with top plates field welded to columns and welded to the top flanges of the beams.

The welding crew of nine men worked just behind the steel erectors. Both shop prefabrication and field erection were welded with Lincoln "Fleetweld 5" for quality, high strength connections in flat and vertical positions. Only ten weeks were required to complete the framework.

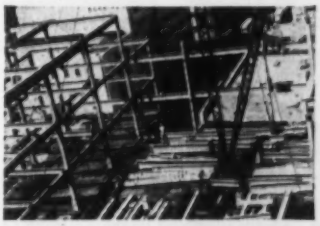

Figure 1. 1178-ton steel framework *for new Ainsley Building, Miami, Florida.*

Figure 2. Close-up *of connections between beams and column reveals how continuity of section is achieved through web stiffeners on column. Shop welded seat angles take shear loads.*

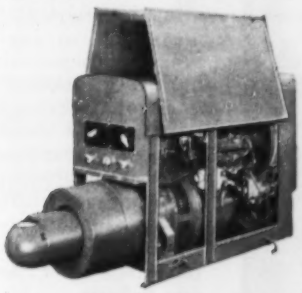

Figure 3. "Shield-Arc" SA-200 *welder handles on-the-job repairs and construction in less time . . . with less cost. Broad current range from 40 to 250 amps.*

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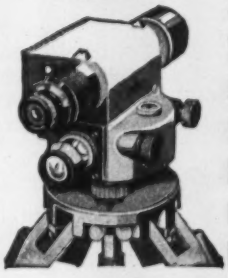

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magnets in the walls of the nozzle orifice. When the machine is not welding, the flux clings to these magnets in tufts and thereby blocks the annular opening around the electrode wire. When welding starts, however, the magnetic field around the electrode wire is sufficiently strong to drag the flux along with the wire as it leaves the gate. The amount of flux (by weight) is influenced by density and granule size, both of which can be controlled, and also by the outside diameter of the magnetized flux coating. The latter depends on the size of the orifice, and can easily be varied. The control orifice cap is light and inexpensive and a bayonet fastening permits quick changes. A series of caps with graduated sized holes are furnished with each machine and cost so little as to be considered expendable. AMERICAN BRAKE SHOE CO., 230 PARK AVE., NEW YORK 17, N. Y.

Plastic joint for clay pipe eases installation

A new low cost, mechanical joint for vitrified clay pipe permits installation of a line with no more effort than it takes to apply the water lubricant to the joint and force the pipe lengths together.

Called the Amvit joint, the new development is of the push type based on the ball and socket principle. It consists of plastic die rings cast electrically on the bell and spigot ends of the pipe. The spigot ring has an exposed convex surface and a diameter somewhat larger than the largest diameter of the concaved surface bell ring. When the two are pushed to-

(Continued on page 118)

INDIVIDUAL SEATING in the new AERO Commander 560

Reclining individual chairs adjust fore and aft providing maximum personal comfort for the occupant.

Individual Seating

is one of the many comfort advantages in the new Aero Commander 560.

Each of the six passengers enjoys by-the-window seating, while a center aisle permits passengers to move about during flight in this 5-7 place twin-engine executive airplane.

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NEW PRODUCTS

gether, the rings are in constant compression and the joint is thus said to be root-proof and infiltration-proof.

The cast rings are made of plasticized resins of polyvinyl chloride and are therefore resistant to most acids and alkalies, oils and other sewage and industrial wastes. Rubber-like qualities along with the ball and socket design permit considerable flexibility in the line — 7 deg offset on either side of the centerline is permissible. Compression within the joint is constant and designed to withstand hydrostatic pressure tests of more than 30 psi.

By using an adhesive as a lubricating agent instead of plain water, the joint can be put together to become permanently fastened. Made in this manner, the joint has been tested to as high as 80 psi hydrostatic pressure without end restraint.

According to the manufacturer, it is now possible to lay a 50-ft line in approximately 15 min. The joint is designed for pipe sizes of 4 in. through 8 in. AMERICAN VITRIFIED PRODUCTS CO., 701 NATIONAL CITY BANK BLDG., CLEVELAND 15, OHIO.

Lightweight cutting torch designed for flexible use

A new torch line is said to combine light weight with heavy cutting capacity. At the same time, it is simply designed to effect savings in maintenance. The cutting valve seat is replaceable without dismantling the torch. Hard drawn copper tips are of slip-in design that are seated in the torch head with hand pressure on the tip nut; no wrench is necessary.

The 3-in-1 torch handle may be rotated to accommodate a cutting jet lever in either under-handle or over-handle position. A trigger may also be installed in the under-handle location. With this design it is reportedly possible to meet practically any operator requirements as to cutting jet lever location.

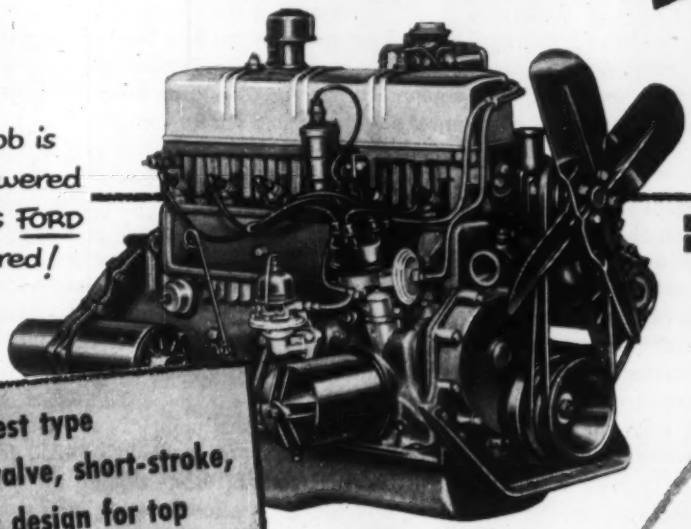
The light weight cutting torch is available in head angles of 75 and 90 deg; and two- and three-hose models for use in all popular makes of automatic cutting machines are also available. The flame characteristics are said to have been improved and the standard cutting speeds of the six-preheat flame series are in the commonly-accepted high-speed range. These same characteristics are assertedly built into special cutting tips designed for gouging, rivet burning, scarfing, etc. SMITH WELDING EQUIP. CORP., DEPT. P854, 2633 FOURTH ST., S.E., MINNEAPOLIS 14, MINN.

Introducing still another ULTRA-MODERN

FORD "223" CU. IN. SIX-CYLINDER INDUSTRIAL ENGINE

at a Low FORD Price

Your job is WELL powered when it's FORD powered!



Ford INDUSTRIAL ENGINES AND POWER UNITS

It's the latest type overhead-valve, short-stroke, deep-block design for top performance and economy.

This new engine is designed to outperform other internal combustion power plants of comparable displacement on the market today. And, coupled with its gas-saving economy is the fact that parts and service are available through Ford Dealers everywhere.

Remember, too, that Ford Sales Engineers are always glad to discuss your particular power problems and extend every help in solving them. Merely phone or write us.

CHECK THESE OUTSTANDING FEATURES:

Overhead valves for better fuel economy, while "free-turn" action prolongs valve life.

Large bore, short-stroke design with 7.2 to 1 compression delivers more power from less displacement.

Chrome-plated top compression rings reduce both piston ring and cylinder bore wear to prolong engine life.

Full-flow oil filter cleans all the oil on every trip through the engine. Bearings last longer, engine life increased.

Full-length water jackets promote uniform expansion of cylinder walls.

Four-bearing, counterweighted crankshaft is precision-balanced for smoother engine operation.

Deep design of engine block extends well below center of crankshaft for greater rigidity, quiet performance and extra long engine life.

A detailed descriptive folder of the Ford "223" Engine, giving complete specifications, power and torque curves, dimensional drawings, accessories available for specific applications, etc., will be sent you upon request.

INDUSTRIAL ENGINE DEPARTMENT

FORD MOTOR COMPANY

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Bidding issue forged more firmly

THE DECISION of the Board of Direction of the American Society of Civil Engineers to uphold the provision against bidding for engineering services in the society's code of ethics by expelling one member and suspending thirteen others will not solve this troublesome question. It only forges the issue of necessary code revision more firmly.

Perhaps by its very severity the decision brings a solution nearer, but such a thought has so many tragic connotations that it is far from satisfying. The punishments—shockingly severe in view of the hitherto lax enforcement of the code and of the uncertainty of just what bidding on a price basis means—of course spell a personal tragedy for each of those who must accept them. And it is a tragedy, too, for the board members who felt that they had no recourse in carrying out their duty but to mete out such sentences; none surely could have cast an affirmative vote but with uncertainty and sorrow.

PRIOR TO THIS ACTION the pros and cons of the bidding question could be argued on the basis of an abstract principle. Now, however, it is no longer abstract. Clothed in the flesh and blood of actual participants in the South Carolina bidding case (ENR Sept. 9, p 21), the question emerges with all its facets in bold relief. And some of them are alarming indeed.

Is there justice, for example, in tarnishing an engineer's reputation for doing what the law requires him to do? Should other engineers suffer a similar fate for offering their services at a price which they consider fair to themselves and adequate to cover a responsible job for the owner? Who is to dispute this fairness or this adequacy, and say that there is inadequacy to the point of damaging the public interest? Who can be asked to assume this responsibility, which takes on such an awesome aspect when with it goes the necessity for fixing a punishment that may ruin a man's life?

And when one is thus cast in the role of judge, can he be sure that he knows when bidding is "inconsistent with honorable and dignified bearing" and therefore subject to punishment, and when it is not?

ATTEMPTS TO ANSWER these questions with a definiteness that leaves no doubts will show that the wording of the code places both ASCE members and their elected representatives in untenable positions, since bidding on a price basis has innumerable variations. Some are quite black, but others are of various shades from gray to white.

Placing price above competence can, of course, result in inferior service, and many ASCE members believe the code provision guards against this possibility and thus protects the public interest. However, against this belief that competitive bidding is not in the public interest stands the belief of some responsible public officials that some form of such bidding is definitely in the public interest.

THE BEST KNOWN EXAMPLE of this is found in the action taken last February by the Ohio Director of Highways in asking several consulting firms of unquestioned competence to submit to him on a specified date the amounts of fee they would ask for survey studies of Ohio Turnpike No. 2. It was the director's stated opinion that these were not to be considered as competitive bids but as a basis for negotiations.

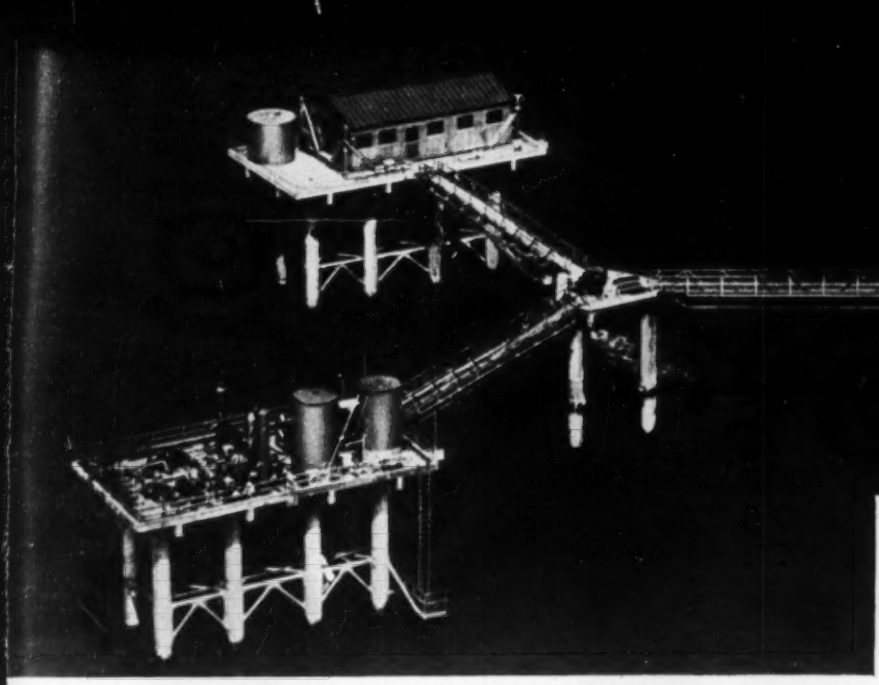
A very similar method was used a few years ago to engage the consulting firms that supervised field work on the New Jersey Turnpike.

We see nothing wrong with the method, yet if the ASCE code means what it says, the practice is a violation. The three firms that responded to the Ohio director's call were obviously in competition for the work. The chief thing the director needed to know was what price each firm asked for its service. The possibility that the final figure might be changed as a result of negotiations does not alter the fact that those negotiations related to price. The competition was on a price basis.

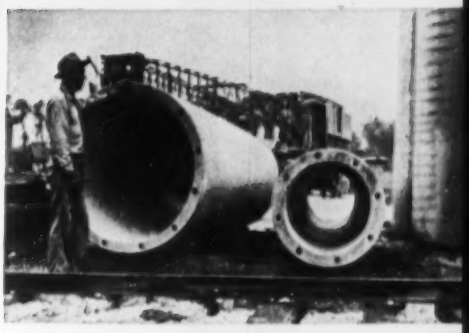
And as a final point: None of the firms could know whether or not is would be held in violation of the ASCE code of ethics despite the assurance of the director. Each offered its services for an amount that it judged to be fair and adequate. Who is to say that this same spirit of professionalism did not animate some or all of the South Carolina bidders?

These observations are made not to pillory the consultants concerned in the Ohio work but only to emphasize the inequity of disciplining anyone severely at this juncture. For it must be noted that the South Carolina bidding was the first conspicuous example of alleged violations of this section of the code, which was inserted only about five years ago. A strongly worded public admonition would have accomplished just as much, and, most important, would have given the board time to decide just what forms of competition on a price basis are not in the public interest, and to revise the wording of the code accordingly.

IT IS NOT TO LATE for such equitable action, because the board has power to reconsider the action just announced. That will take courage, but the time is one calling for courageous statesmanship and a facing up to the issue.



Oil production platform in Gulf of Mexico on 36" Raymond Cylinder Piles.



Two typical pile sections.

THE Raymond
PRESTRESSED CONCRETE CYLINDER PILE

Raymond, pioneer in concrete piles, announces its latest construction development, the CYLINDER PILE, which is ideally adapted for use in off-shore projects. This pile is a hollow cylindrical pile of prestressed concrete, manufactured in a series of sections placed end to end and joined together by post-tensioned cables of high tensile steel wire . . . The advantages over other types of piles are numerous. Prestressed Cylinder Piles have extraordinary structural strength. They are fireproof, corrosion-proof and not subject to attack by marine organisms, thus assuring low maintenance and extremely long life. In addition, their flexibility as to length, diameter and extent of prestressing makes it possible for them to meet a wide variety of design requirements.

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Assembling of the pile sections.
Raymond Cylinder Piles are made in lengths up to 200 feet.

Offices serving the Gulf Coast Area:

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Raymond
CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

New portable Mixall produces up to 5 tons of hot mix per hour

TIMKEN® bearings keep it rolling

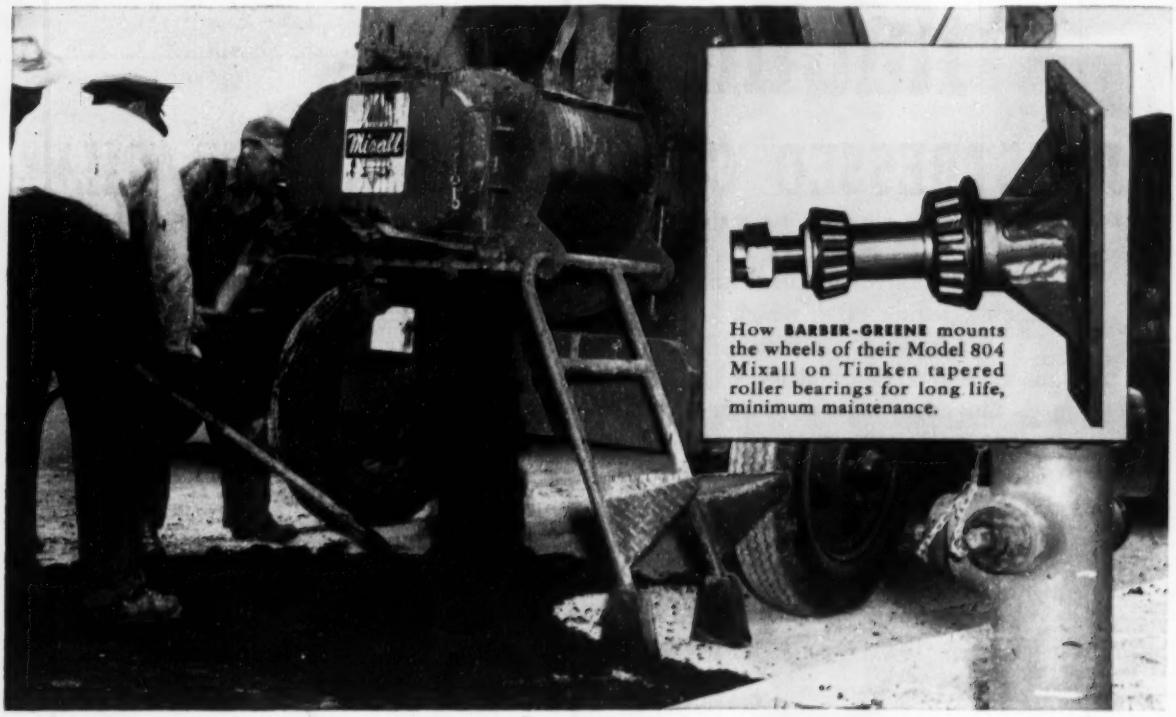
THE new Barber-Greene 804 Mixall will produce up to 5 tons per hour of any type hot mix, up to 10 tons per hour of cold mix and will produce low slump Portland cement mixes. It's compact and portable, especially suited for small maintenance and paving jobs. Timken® tapered roller bearings on the wheels keep it rolling in all kinds of weather, over all kinds of terrain, assuring availability.

The dirt and mud the Mixall sometimes works in, call for effective closures. By holding housings and axles concentric, Timken bearings make closures more effective. Lubricant is kept in—dirt and moisture are kept out. Result: less time out for maintenance and repair.

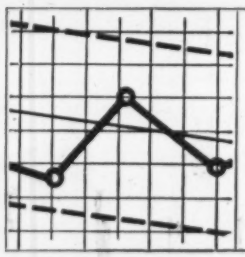
Since the Mixall travels almost constantly from job to job, often over rough terrain, the wheel bearings take a beating. But the tapered design of Timken bearings lets them take both radial and thrust loads. And full line contact between rollers and races of Timken bearings provides load-carrying capacity to spare. Shock loads are easily taken because Timken bearings are case-hardened to give them a hard, wear-resistant surface over a tough, shock-resistant core.

If you want rugged dependability in the construction equipment you buy or build, look for the trade-mark "Timken" stamped on every bearing. You get long life with minimum friction. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How **BARBER-GREENE** mounts the wheels of their Model 804 Mixall on Timken tapered roller bearings for long life, minimum maintenance.



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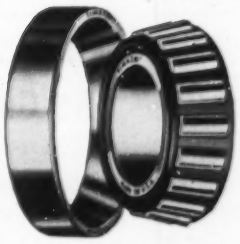

NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ◫ AND THRUST →◫← LOADS OR ANY COMBINATION →✳←